PAPER TRADE JOURNAL

VOL. 123, NO. 21 NOVEMBER 21, 1946

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We Give Thanks, this sixtieth Thanksgiving season of ours, for all the blessings that a benign Providence has vouchsafed to a fortunate land . . . for its abundant resources and its limitless opportunities . . . for its stalwart citizenry and its friendly neighbors . . . for an America that has remained free and forward-looking, the hope and inspiration of the world.

GOTTESMAN & COMPANY
— INCORPORATED —

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State Department Lists Paper as Bargaining Item
Great Northern Names Stanwood Vice-President
Holyoke Marks Time But Expects Increases
Union Bag's New Plant is on Schedule

Pulp Price Rise Likely to Halt at Ten Per Cent
Morgan Heads Weyerhaeuser Pulp Division
Alaska Optimistic on Pulp Mill Prospect
Midwest Reacts to Its Open Market

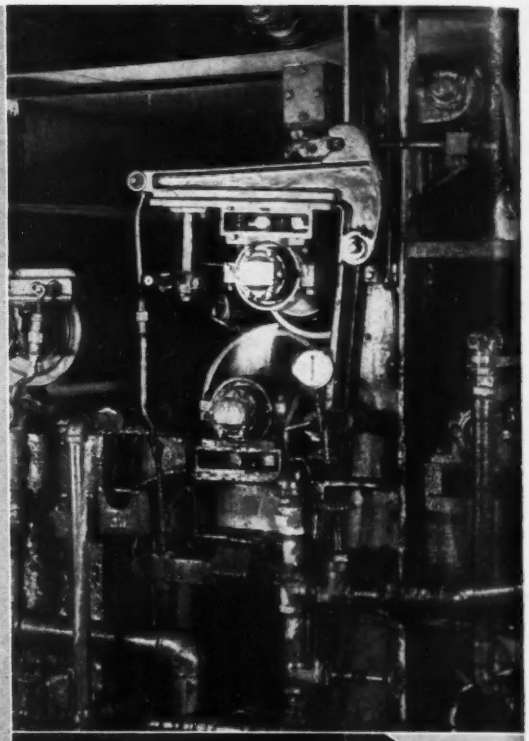
SUCTION-EXTRACTOR

Exclusively

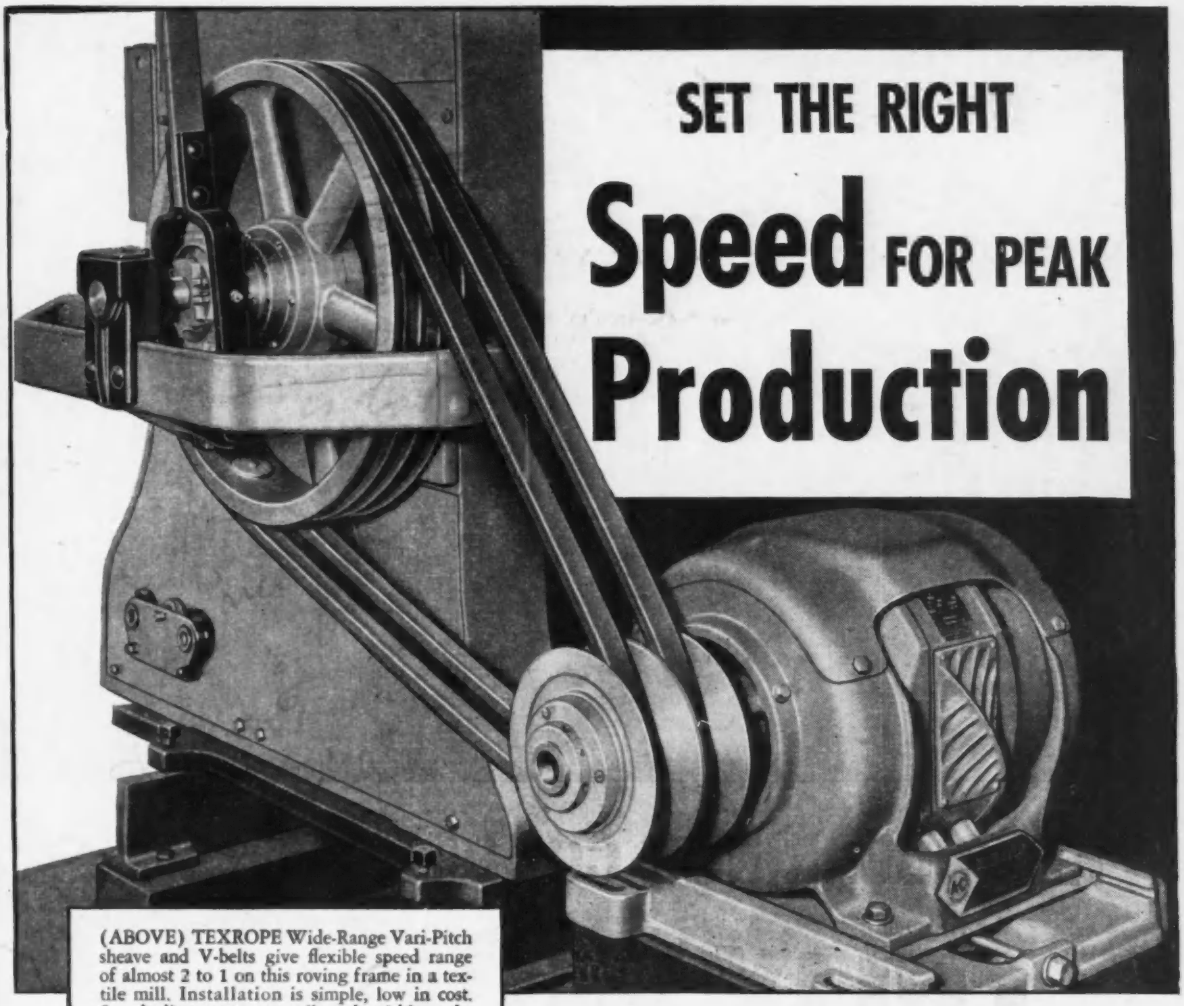
A Downingtown Product

Following the success of the Downingtown Plain Extractor, we went one step farther, with the pioneering and patenting of the Suction-Extractor in 1938. This roll is a combination of the Extractor and the Suction Roll, and gives best results when installed following a plain Extractor, as pictured below. The combination safely removes large volumes of water, compacts the sheet and strengthens it at a point where it is easily pressed. Air bubbles are removed and the layers of the sheet sealed together. Many of the mills that installed a plain Extractor alone, as pictured at right, have since ordered Suction-Extractors. Catalogs on request.

DOWNINGTOWN MANUFACTURING CO.
DOWNINGTOWN, PA.



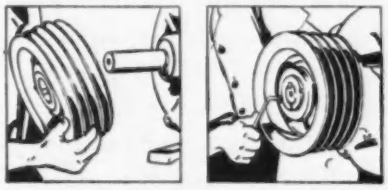
DOWNINGTOWN
Designers & Builders
Paper Making Machinery



SET THE RIGHT Speed FOR PEAK Production

(ABOVE) TEXROPE Wide-Range Vari-Pitch sheave and V-belts give flexible speed range of almost 2 to 1 on this roving frame in a textile mill. Installation is simple, low in cost. Speed adjustments are easily and quickly made.

"MAGIC-GRIP" SHEAVE



GOES ON EASY . . . GRIPS TIGHT

Patented "Magic-Grip" sheave comes completely assembled. You simply slip it on the shaft (there's easy clearance for even over-size shafts) then tighten three cap screws. Sheave is locked on with a powerful clamp fit — yet it can be removed just as easily. No hammering to damage motor bearings — no filing or reaming. And, no wobble, weave or backlash.

TEXROPE Variable-Speed Drives Give Speed Flexibility at Low Cost

ON MILLS, machine tools, blowers, pumps — wherever changes in speed will add to operating efficiency, output or economy — get the speed flexibility you need with low-cost constant-speed motors and Texrope Variable Speed Drives. There are types to meet all requirements: Vari-Pitch sheaves, for stationary and motion control, Wide-Range Vari-Pitch drives and Speed-Changers.

COMPLETE V-BELT SERVICE: Your Allis-Chalmers dealer or district office offers TEXROPE "Super-7" V-Belts in five types, all lengths and sections; TEXSTEEL, TEXDRIVE and "Magic-Grip" Sheaves. It's a COMPLETE line of V-Belt equipment, engineered by Allis-Chalmers, originator of the multiple V-Belt Drive. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN.

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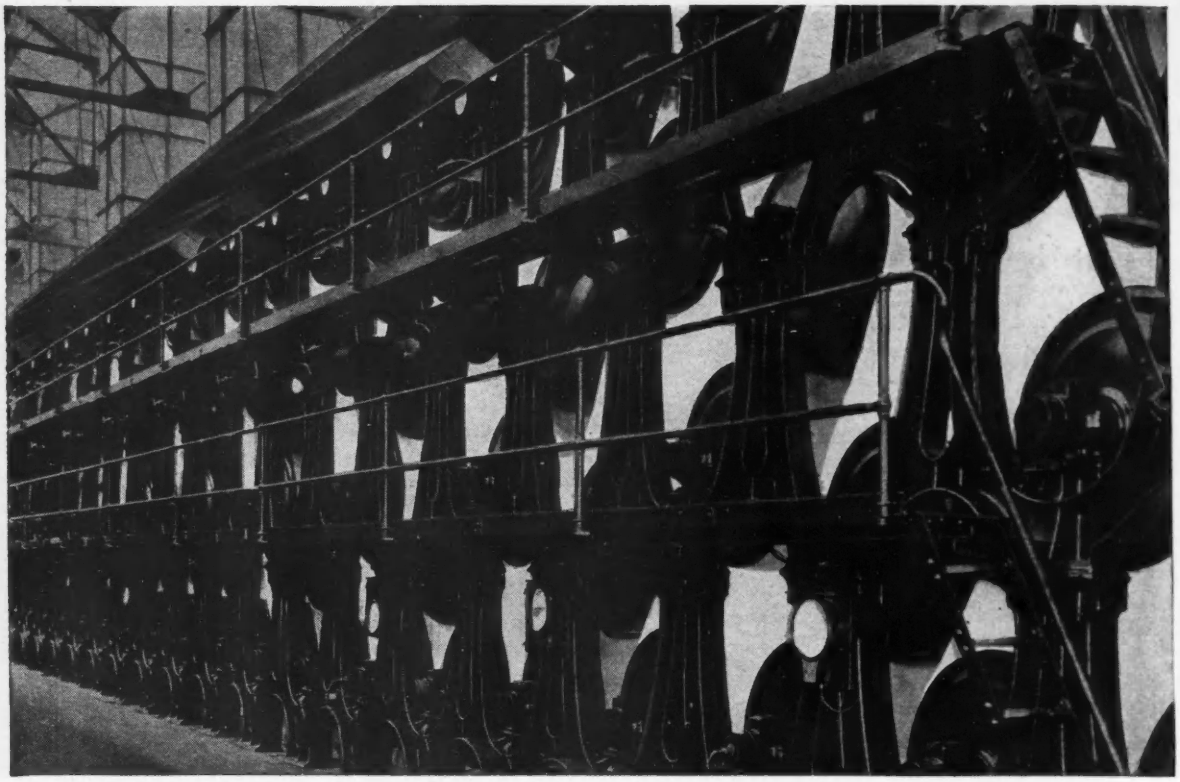
TEXROPE V-BELT DRIVES



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Texaco Oils for paper machines resist oxidation, sludging and foaming even under the severest conditions of temperature and pressure. They assure a continuous flow of clean, cooling oil to all bearings, and prevent rusting of costly machine parts. With Texaco Oils, expensive "clean up" of circulating systems is eliminated.

For enclosed reduction gear drives, use *Texaco Meropa Lubricants;* and for open gears, use *Texaco Crater.*

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TEXACO Lubricants
FOR THE PAPER INDUSTRY

Tune in . . . TEXACO STAR THEATRE presents the NEW EDDIE BRACKEN SHOW every Sunday night. See newspapers for time and station.

PAPER TRADE JOURNAL

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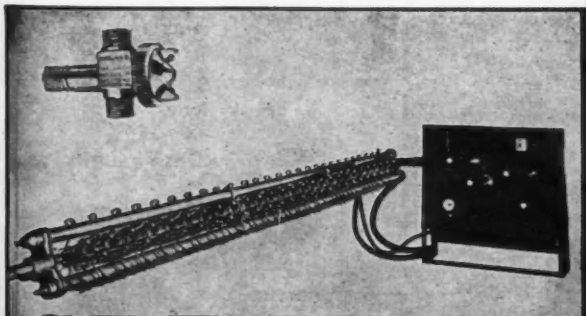

SPRACO BATTERY SPRAY MOISTENING EQUIPMENT

For the application of moisture in the form of coarse spray, fine spray or mist of uniform density across any desired width of web, with controls for varying the amount of moisture sprayed, at the same time maintaining uniform distribution.

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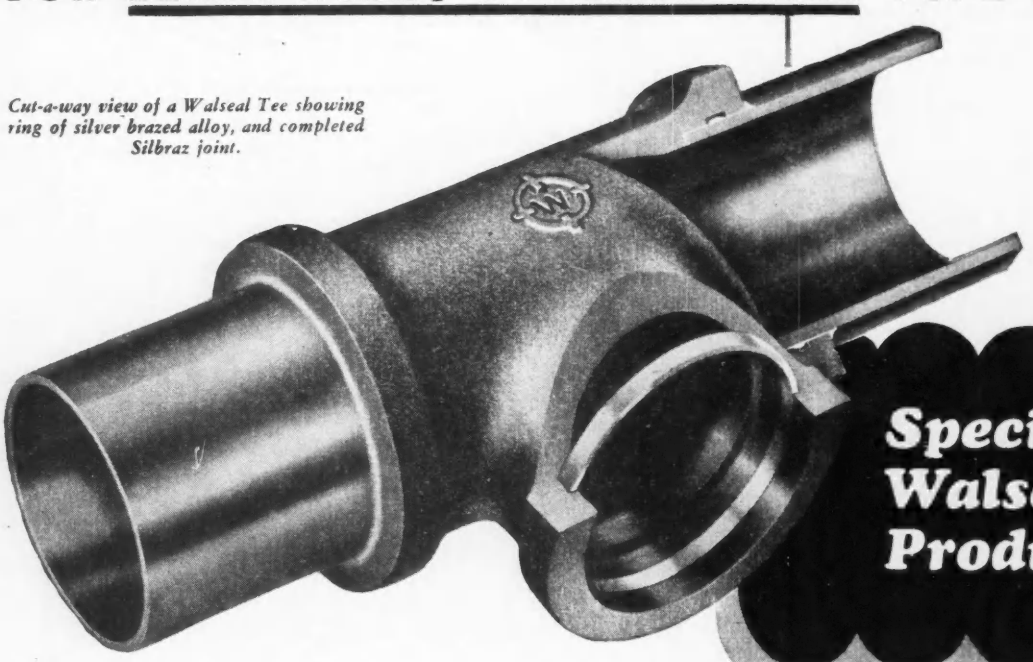
SPRAY ENGINEERING CO. 118 CENTRAL STREET • SOMERVILLE 45, MASS.

FOR LEAKPROOF, TROUBLE-FREE PIPE RUNS

Cut-a-way view of a Walseal Tee showing ring of silver brazed alloy, and completed Silbraz joint.



Specify Walseal* Products

On all types of piping jobs where Type "B" copper or red brass pipe is used, trouble can be avoided by installing Silbraz* joints — made with Walseal valves, fittings and flanges.

Threadless, patented Silbraz joints are silver brazed (not soft soldered) pipe joints that are leakproof, trouble-free — permanent . . . connections that will not creep or pull apart; that literally join with the piping system to form a "one-piece pipe line". Thus, these modern joints eliminate the need for maintenance and costly repairs — especially important where lowered operating costs are imperative.

For complete details on the modern Silbraz joint, made with Walseal products, write for a copy of Walworth Circular 84.

**Patented — Reg. U. S. Patent Office.*

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Hot and Cold Water Circulating Systems

Boiler Feed Lines

Steam Return Lines

Condensate Lines

Low and High Pressure Air Systems

Lubricating Oil Circulating Systems

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Make it a "one-piece pipe line" with WALSEAL

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valves and fittings

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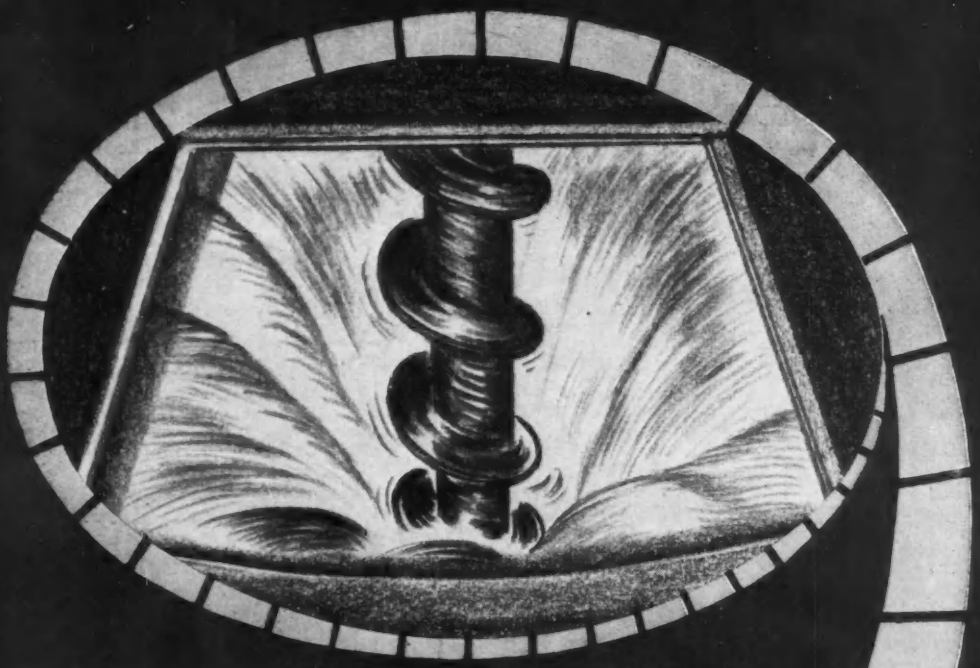
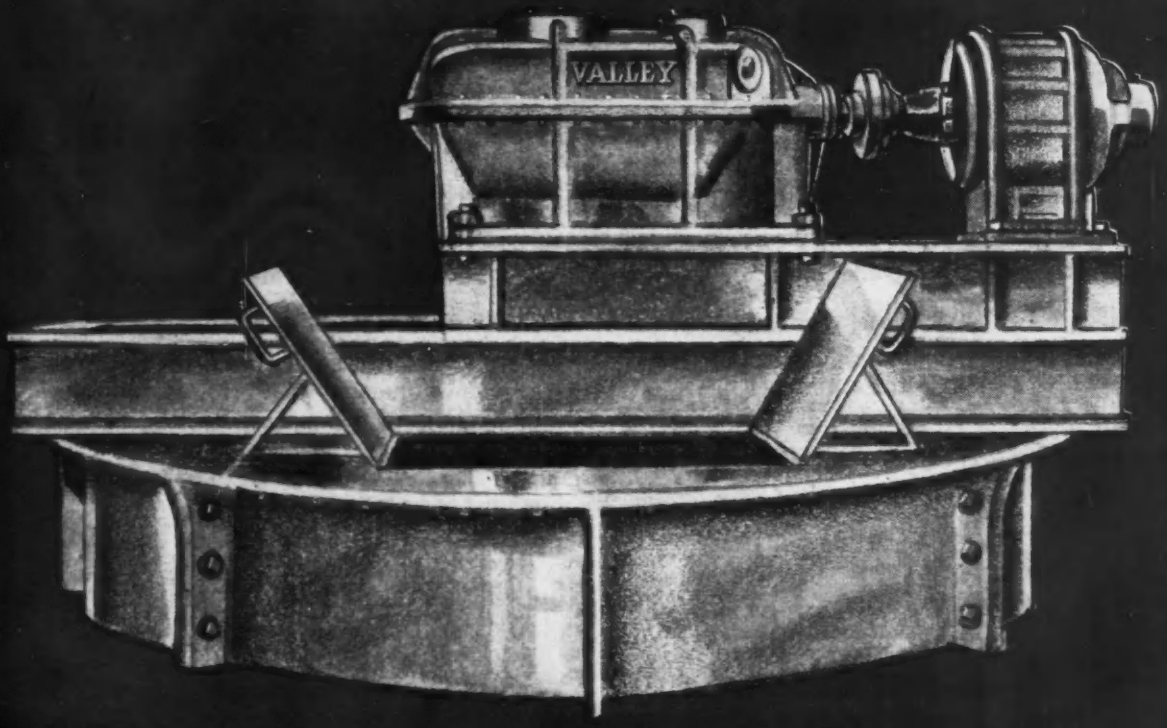
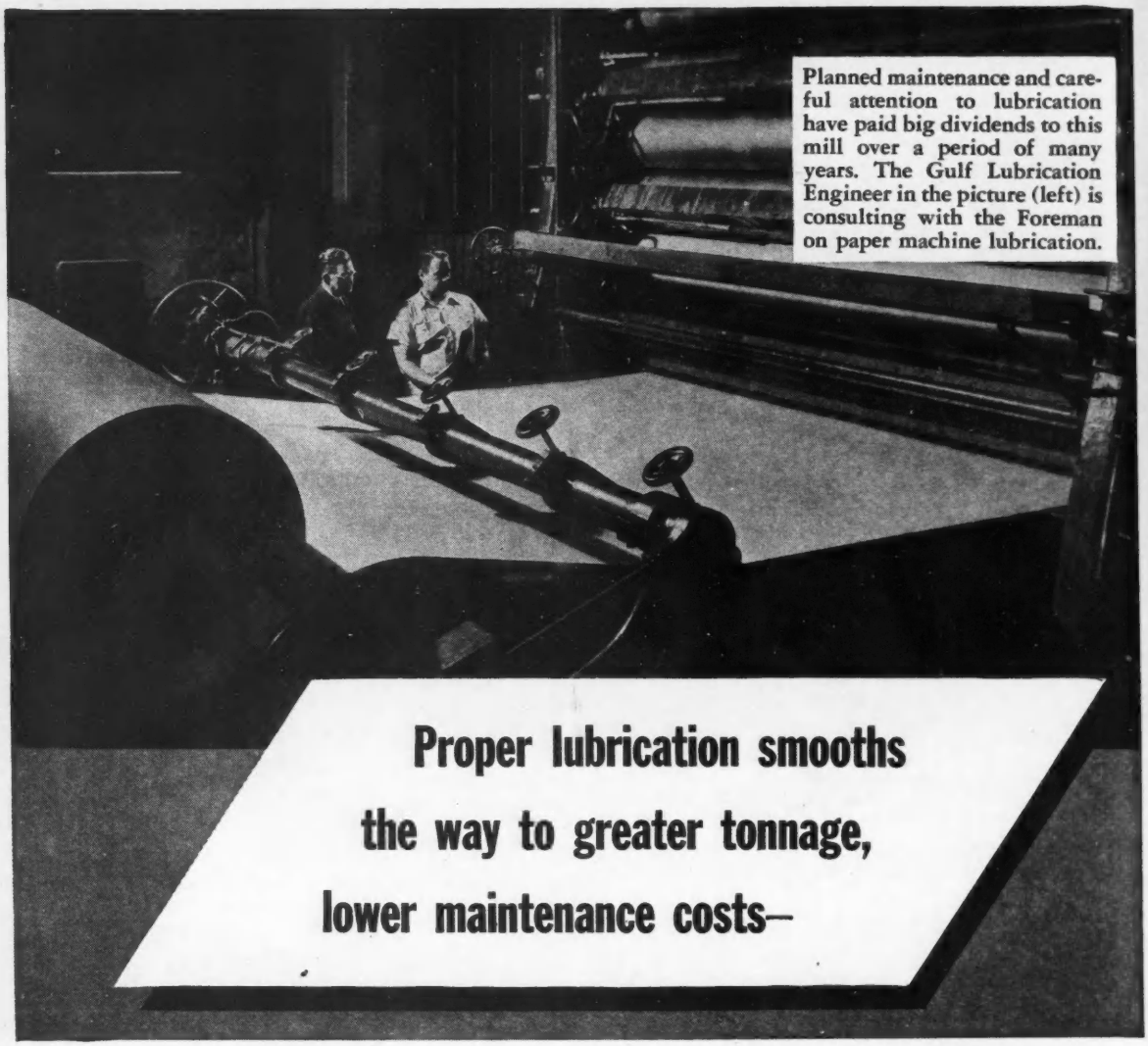
THE VALLEY-VORTEX PULPER



. . . introduces a <u>new</u> combination
of terrific pulping effects
in <u>ONE</u> GREAT PULPER



VALLEY IRON WORKS CO., Appleton, Wisconsin



Planned maintenance and careful attention to lubrication have paid big dividends to this mill over a period of many years. The Gulf Lubrication Engineer in the picture (left) is consulting with the Foreman on paper machine lubrication.

Proper lubrication smooths the way to greater tonnage, lower maintenance costs—

it pays to have a Gulf Lubrication Engineer "in the picture"

THE efficiency of paper machine lubrication has a direct bearing on tonnage produced and on costs for maintenance and power. That's why a majority of leading mills keep a Gulf Lubrication Engineer "in the picture" and follow his helpful advice on their lubrication problems.

Gulf Lubrication Engineers recommend the proper application of the right oils and greases for every moving part—then co-operate closely with mill operating and maintenance men to keep lubrication on a sound, scientific basis the year around. Result: less machine down time, greater tonnage and lower power and maintenance costs.

Make sure you are getting the advantages of all recent developments in lubricants and application methods. Write, wire, or phone your nearest Gulf office today and ask a Gulf Lubrication Engineer to call.

GULF INDUSTRIAL LUBRICATION

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Facts and figures prove Rayco Linter Cotton an ideal base for paper. Before Railway Supply introduced these fibers to the paper industry, Rayco engineers carried out extensive laboratory research and numerous in-the-mill test runs.

The facts obtained proved the following about Rayco Linter Cotton:

- ★ **it is an ideal base material for making fine cotton content paper**
- ★ **it is easily adaptable to a variety of processes and types of equipment**
- ★ **it is always delivered clean and ready for the cooker operation**
- ★ **it speeds production by eliminating rag room operations and reducing cooking time.**

Demonstration in your mill by Railway engineers will be given upon request.

The RAILWAY SUPPLY & MFG. CO. and Affiliates

Specialists in Grading, Marketing and Processing Cotton Fibers

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RAYCO LINTER COTTON

PAPER · · · America's 6th Industry

"WINDOW" BAGS FOR PERISHABLES

NOTE: Several chain grocery organizations are pre-packing fresh produce in specially developed paper "window" bags before it reaches neighborhood stores.

A new type of Kraft paper bag with a "window" of cellophane is revolutionizing the merchandising techniques for fresh fruits and vegetables. Produce is placed on store counters—packaged, weighed and priced—ready to be picked up by shoppers. Savings as high as one-third are effected through the elimination of handling, shrinkage and spoilage. Buyers can judge the quality of their purchases through the cellophane windows.

Reprint of a 600-word article describing this new paper product is available for the asking.

Paper sheets . . . paper pillow cases . . . paper wash cloths . . . paper draperies . . . new uses for paper calling for new standards of lightness and toughness, new standards of quality in performance. New responsibilities—new opportunities for the Pulp and Paper Industry.

The Puseyjones Organization is now devoting itself completely to the design and construction of Paper-Making Machinery built to new high standards of speed and efficiency, and to the modernization of existing machines.

Among the new machines under construction by Puseyjones are three of the largest and fastest Fourdrinier Machines, one for book and high grade printing papers, one for white paper for bags, and one for Kraft liner board; also one Cylinder machine of record size and speed for the manufacture of floor covering felt. Other machines are under construction for M. G. Kraft specialties, facial tissues, and high grade bristols.

Puseyjones Engineers will welcome the opportunity to work with you in solving production problems.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U. S. A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

PAPER TRADE JOURNAL
Vol. 123, No. 21 November 21, 1946
Title Reg. U. S. Pat. Off.

Howard Morgan Heads Weyerhaeuser Pulp

LONGVIEW, Wash.—Howard Morgan, graduate of the New York State College of Forestry at Syracuse University in 1926, has just been promoted to manager of the Pulp Division of the Weyerhaeuser Timber Company, with residence at 2119 Northeast Nicholas Boulevard, Longview, Washington, after January 1.

The Weyerhaeuser Company operates two sulphite pulp mills — one at Everett, and one at Longview; a new mill is being built at Longview.

Morgan received his master's degree at the College of Forestry in 1928 and was employed with the Oxford Paper Company as research and development chemist in charge of chemical pulp investigations. He returned to the college in 1932 as an instructor in pulp and paper manufacture and became research associate, Institute of Paper Chemistry, in 1934 with the responsibility of operating the pulp and paper manufacturing section. This involved consultation and research for the various member mills of the Institute and instructing in pulp and paper manufacture.

In 1938 he became technical director and successively mill manager and vice-president of the Munising Paper Company. During the war he was a member of a commission, with Ernst Mahler, vice-president of the Kimberly-Clark Corporation, and Dr. Otto Kress, technical director of the Institute of Paper Chemistry, which served with the United States Army as production specialist to survey the French, Belgium and Dutch paper industries, and organized paper production there.

Southern Advance Produces New Container Product

BOSTON — R. L. Fitts, president of Southern Advance Bag & Paper Company, Inc., discloses this week the manufacture of a new paper product at the company's plant in Hodge, Louisiana. The product, sold under the trade names Auto-Wrap and Wrapit, is a paper container constructed to facilitate the hand wrapping of boxed items.

All patent rights have been assigned to the Auto-Wrap Corporation. This company, headed by Mr. Fitts, is located in New York City and is the selling organization for the product.

State Department Lists Paper As Tariff Concession Item

WASHINGTON — The State Department has now issued the list of products on which possible tariff concessions by this Government will be considered in reciprocal trade agreement negotiations scheduled to begin in April 1947.

The list includes paper base stocks, such as pulpwood and wood pulp, paper and manufactures, including standard newsprint, book and other printing paper, uncoated, strawboard, etc., writing and drawing paper; Bristol board, surface coated paper, many paper specialties; paper board, pulp board, container board, card board, various other paper boards, tissue paper, greaseproof and similar papers.

Not every item listed is necessarily slated for tariff action, it was indicated, the action taken depending on outcome of negotiations, and also, according to the Department, not every item is necessarily subject to tariff changes. Hearings will be held on all items where required.

Despite assurances that domestic industries would be given adequate time in which to prepare briefs, the final date for filing briefs is now announced as December 21. Oral hearings will begin on January 13. It had been understood that at least sixty days would be granted for the preparation of briefs, but the time allowance has been cut to a little over thirty days.

The items listed for negotiations, under which the existing rates can be cut fifty percent, follow:

Grade of Paper	*Present Duty Rate*
Uncoated Printing Paper (Book & Groundwood)	1/5 per lb. and 5%
Pulpboard Rolls for Wallboard, not processed	5%
Strawboard	10%
Shoeboards	10%
Roofing, Sheeting, Deadening Felts	10%
Manufactures of Pulp	30%
Tissue weighing less than 10 pounds per ream of 288,000 sq. inches except copying and bibulous valued at over 15c per lb.)	2½c per lb. and 7½ to 4c per lb. and 10%
India and Bible, weighing from 10 to 21½ lbs. per ream.	2c per lb and 10%
Creped Paper, Paper and Pulp Wadding and manufactures of such wadding	3c per lb. and 7½ to 6c per lb. and 15%
Coated Papers (including Coated Book)	5c per lb. and 15%
Fancy Papers, not coated	4½c per lb. and 10% to 4½c per lb. and 20%
Wax Coated Paper	3c per lb. and 15%

(Continued on page 28)

Great Northern Names Stanwood Vice-President

NEW YORK—Creighton B. Stanwood was elected vice-president and manager of manufacture of the Great Northern Paper Company at a meeting of the directors last week.

Mr. Stanwood, a native of Portland, Me., was graduated from Massachusetts Institute of Technology in 1920, after having served in the Chemical Warfare Service, U. S. Army. He entered the employ of the Great Northern Paper Company at Millinocket, Me., in 1921 as chemical engineer. He later assumed the duties of steam engineer of the company, and in 1928 was made superintendent of the bureau of tests, where he was active in effecting economies in manufacturing processes. In 1935 he was transferred to Boston as assistant manager of manufacture, and for the past eleven years has been closely associated with all phases of the company's manufacturing operations. During the war period, Mr. Stanwood served on OPA and WPB Advisory Committees for the Newsprint Industry.

Lakes Pulp Steamer Enjoys Best Season

BUFFALO, N. Y.—Finishing its best season of pulpwood shipments since 1940, the Steamer Cartierdoc arrived this week at the International Paper Company, North Tonawanda, with a 192,000-cubic foot load. It was the sixth delivery in this area since navigation opened last April. Officials of International Paper estimated the season's total at 1,150,000 cubic feet.

Central Paper Stands Pat On Its Basic Prices

MUSKEGON, Mich.—E. W. Pitt, director of sales of the Central Paper Company, Inc., has advised that although the OPA controls on paper have been removed, the company does not contemplate any immediate increase in basic prices.

Holyoke Marks Time Expects Increases

HOLYOKE, Mass. — Holyoke's paper-making industry, long shackled by the OPA, can get its head above water now that all government controls have been lifted, according to local manufacturers. Paper company officials said this week that it will be several days before a definite pattern can be seen, as they themselves won't know their true operating costs until the raw material market settles.

OPA, before President Truman ordered its burial, had granted a $9 a ton price rise across the board for the writing paper industry. This would have been a partial relief to the harried industry, inasmuch as last month, the price of pulp had gone up.

The new prices will be considerably above the $9 figure, it was stated by a spokesman for the paper mills here. The mills are protected on the unfilled orders on their books, as sales were made on them on a price as of the day of shipment.

The writing paper industry, in contrast to the newsprint and kraft paper mills, has had little OPA consideration, and has been suffering from steadily rising costs with little relief on the prices.

"Now we can get into a position where we can make a little money," one manufacturer said, adding his plant has been hemmed in severely by the OPA restrictions on the price end and its latitude on the cost side of his operation.

Court Awards Monadnock Verdict for $39,587

BOSTON — In a suit brought by Brightwater Paper Company against Monadnock Paper Mills in 1941 for a sum in excess of $125,000 a decision has been handed down October 24 by Judge Ford of United States District Court in favor of the defendant.

In its judgement, the court awarded $39,587.32 to Monadnock, the difference between its claim against the plaintiff and the amount Brightwater had sought.

Counsel for the Bridge Paper Company were Walter E. Donovan of Adams, Mass., and Damon E. Hall of Boston. Counsel for Monadnock Paper Mills were William P. Sleigh, Jr., and Gardner W. Russell, both of Boston.

Parker Awards Safety Prizes

KIMBERLY, Wis.—Continued support for safety practices was asked last week by Cola G. Parker, president of Kimberly-Clark Corporation, of the mill employes here at a safety program at the clubhouse. He congratulated the large group on its safety record, and presented certificates to each of the six teams in the recent safety contest. First place winner was Team No. 1, which was awarded a certificate redeemable for $300. Each of the other five teams received a similar certificate, valued progressively at $50 less, according to rating in the contest.

Mr. Parker, who was introduced by J. T. Doerfler, Kimberly mill manager, also referred briefly to the corporation's plans for its seventy-fifth anniversary. Dud Courchane, mill safety director, was master of ceremonies. Also attending the program were E. J. Schulenberg, assistant to Mr. Parker, and Al Johnson, who heads the safety contest at the corporation's Badger-Globe mill at Neenah.

Hollingsworth & Vose Advances Harrington in Sales Ranks

EAST WALPOLE, Mass. — Hollingsworth & Vose Company, of which Thomas Compton Walsh is sales manager, announces that Grant Harrington has been made assistant sales manager of the Hollingsworth & Vose Company. Mr. Harrington had 26 years' experience in the manufacturing department before his connection with the sales department three years ago, devoting his work largely to special industrial papers.

Newsprint Stocks Off; Consumption Up

NEW YORK — Daily newspapers reported last week to the American Newspaper Publishers Association that stocks of newsprint paper on hand were 32 days' supply at the end of October 1946, a decrease of two days' supply compared with 34 days' supply at the end of September 1946. This 32 days' supply at the end of October 1946 compared with 40 days' supply at the end of October 1945; 54 days at the end of October 1944; 53 days at the end of October 1943 and 45 days at the end of October 1941.

Daily newspapers reporting to the ANPA consumed 292,205 tons of newsprint paper in October 1946, compared with 236,939 tons in 1945 and 262,488 tons in 1941. This was a consumption increase in October 1946 over October 1945 of 23.3 percent and an increase of 11.3 percent over October of 1941, which was the base year for calculating allowable use by newspapers under former WPB Order L-240.

The total estimated newsprint consumption in the United States for October 1946 is 411,556 tons which includes all kinds of uses of newsprint paper. For the first ten months of 1946 it is estimated to be 3,591,442 tons.

During the first ten months of 1946 the reporting newspapers used 2,549,924 tons of newsprint, an increase of 27.9 percent over the first ten months of 1945 and an increase of 5.8 percent over the first ten months of 1941.

Midwest Reacts to Its Open Market

The Chicago paper market closed the first week without price control in the way that most observers expected. Prices on lines which had not received as much "adjustment" by OPA — in other words badly "squeezed" lines — zoomed up sharply in comparison with lines that had been refused earlier. Better grades of paper went up correspondingly higher than did the less expensive grades. Ground woods, for example, were quoted to be at an average of $10 a ton higher although specific levels were not yet settled, as far as could be determined.

The higher grades of paper made a broader advance with bonds and mimeographs, among others, reported up at around $25. The all around 10 percent to 12 percent average increase was, in the opinion of the local trade, most favorable in comparison with many other commodities.

One thing was quite certain — and obvious. The price of the paper was not going to make any dent in the desire of customers for paper. Demand continued just as strong as ever with the market putting desire above price as the shortage of supply continued. The trade reported that the industry was not unmindful of its competitive position and customer relationship responsibilities and felt that, in general, after costs had been covered and a fair profit realized there would be no gouging of the trade except for isolated and sporadic instances. It was felt that the absence of controls would not only accelerate production but be of even greater use in eliminating bottlenecks in supply industries to make that improved production possible.

Albert Farr Presides At Office Management Meet

HOLYOKE, Mass. — Albert E. Farr, merchandise manager of the National Blank Book Company, presided at the meeting here of the Springfield Chapter of the National Office Management Association. Following the luncheon, the group visited the plant and offices of National Blank Book, where Farr was assisted in his program by S. W. Kirchner, H. S. Burton, Francis Fleming, assistant merchandise manager, and C. R. Harvey, product analyst. Among Holyoke members of the organization are White & Wyckoff and Crocker-McElwain.

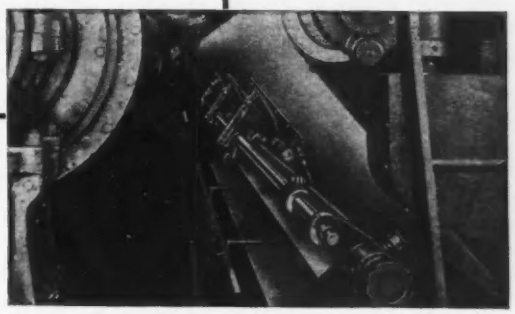
United Names Olson in Chicago

CHICAGO — Promised expansion of the United Paperboard Company efforts in the middlewest has been placed in evidence with the recent appointment of N. A. Olson to the United regional sales office in Chicago. Mr. Olson was formerly with United as the New England representative.

YOU'RE NOT GETTING ALL THE PAPER YOUR PAPER MACHINE IS CAPABLE OF MAKING

Unless Your Press Felts Are Equipped With

VICKERY FELT CONDITIONERS



WHEN you've got a Vickery Felt Conditioner on every felt you can run the felts at top speed and know that they're doing their job right through to the end of the week.

You don't have to shut down the machine for felt wash-ups. You speed drying and save money because you get maximum water removal at the presses.

Are *your* felts in condition to make the most paper? If not, better get in touch with

BIRD MACHINE COMPANY

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Scott Breaks Ground For New Power Unit

PHILADELPHIA—Ground was broken last week for a new $1,200,000 power plant unit for Scott Paper Company at the foot of Market Street, on the old Chester Shipping Company property. Scheduled for completion within nine months, the plant is the first step in a utilities expansion program which calls for the eventual transfer of Scott's entire power plant to the new site, the company explained. The building will occupy an area of about 4500 square feet; it will be of brick and tile and will house a 150,000-pound steam boiler, with auxiliary power.

Scott Paper Company's present power plant is now a part of the main building, east of Market Street. It consists of three steam boilers and three turbine generators.

Completion of the new unit on the west side of Market Street will prevent temporary mill shutdown for power plant maintenance, company officials say. Shutdowns have been necessary in the past because of the lack of sufficient power equipment to keep all production units operating during overhaul periods.

The site of the new power unit has been used for employes' parking space. It formerly was part of the Chester Shipping Company property, and includes the old frame warehouse and bulkheads along the river. This property was purchased several years ago by Scott, along with the adjoining Consumers Coal and Ice property.

Early in the war the company adapted its power plant to the burning of coal as well as oil, and the Consumers property is being used for coal storage.

Dry Casein Output Stays At Higher Level

WASHINGTON, D. C.—Production of dry casein during September continued at high levels compared with those of a year ago, although it declined much more than seasonally from August to September, the Bureau of Agricultural Economics reports. Production during September was estimated at 1,025,000 lbs., a gain of 55 percent from a year earlier but still 53 percent below the September 1940-44 average. The seasonal decline from August to September was 34 percent, the sharpest on record, compared with 26 percent last year and the five-year average of 16 percent. Cumulative production from January through September totaled 13,805,000 lbs., a gain of 25 percent from a year earlier, but a 53 percent decline from the five-year corresponding average. Manufacturers' stocks of dry casein totaled 4,790,000 lbs. on September 30, the lowest of record for the date except for 1943 when stocks were only 2,707,000 lbs.

Professional Group Hears Taylor Speak

CHICAGO — The Professional Paper Group heard a lot about timber as a most important crop on Monday evening, November 18. At that time members and guests assembled in the dining rooms of the Chicago Bar Association to hear a discussion on "Reforestation" by M. H. Taylor, executive director of Trees for Tomorrow, Incorporated. An announcement of the meeting, adequately illustrated, had announced that "next to food, our forest growths are nature's greatest gift to man. Indiscriminate violation of this gift almost led to irreparable loss. The development of our forest resources is of vital importance to all of us. Either directly or indirectly it has a profound influence on our daily lives. Too little is known of the efforts being made to again make America the Land of Majestic Forests."

Mr. Taylor presented visual evidence of the progress being made in the efforts to renew forest growth. He is head of a non-profit organization of the Wisconsin Valley Paper Making Industry, founded to help advance this worthy undertaking. A big crowd is expected to hear Mr. Taylor and to make full use of most interesting and informative evening.

Crocker-McElwain Publication Takes Journalism Award

HOLYOKE, Mass.—The "Paper News Poster," publication of the Crocker-McElwain Co., is one of several publications representing manufacturers and business organizations throughout the state to receive an award for distinguished industrial journalism. The contest was sponsored jointly by the Associated Industries of Massachusetts and the Massachusetts Industrial Editors' Association.

Edson S. Dunbar is editor of the "Paper News Poster." He and the other winning editors in the state will receive the awards at a meeting of the editors' association in Boston, November 20.

Judges were Erwin D. Canham, editor-in-chief of the Christian Science Monitor, Boston; T. O. Armstrong, manager of industrial relations of Westinghouse in Springfield; and John H. McCullough, art director of the H. B. Humphrey Co., Boston.

Port Huron Sulphite Promotes McFarland

CHICAGO—Bruce McFarland, a popular former member of Chicago's paper sales executive fraternity, has recently been appointed assistant sales manager of the Port Huron Sulphite & Paper Company. He will be located at the mill headquarters in Port Huron. Mr. McFarland represented the Port Huron line in the Chicago area for nearly ten years before entering the army.

Union Bag Box Plant Found on Schedule

SAVANNAH, Ga. — According to announcement by T. T. Dunn, resident manager, construction on Union Bag & Paper Corporation's new corrugated box plant and on three other additions to the company's manufacturing properties in Savannah is proceeding on schedule and should be completed in time for the new units to be in operation by the middle of next year.

"Besides the box factory, which will be a streamlined one-story structure covering 160,000 square feet, construction now in progress consists of a fifth paper machine, a four-acre enlargement of the bag factory, and the installation of electrical precipitators designed to reduce smoke and odors from the pulp mill and to recover certain chemicals," it was said.

"The foundation for the box factory has been completed, and the steel framework for the two-story bag factory addition has been erected. The 250-foot chimney and other installations required for the electrical precipitators have been erected, and work on the breeching for these installations is now in progress. The massive foundation for the new 450-foot paper machine is nearing completion. This machine will be of the very latest design and will produce quality papers required by the company in the further integration of its special packaging operations."

Mr. Dunn said the Savannah plant now employs more than 4,000 persons, but several hundred additional employes will be needed when the new production units are completed.

Midwest Discovers Waste Market Uncertain

CHICAGO — A fair amount of waste paper was moving this week in the local market at the old ceilings, despite the abandonment of price controls. There were, however, expectations of higher levels developing in the next few days on some grades. A feature reported in the waste rag market was that which indicated that roofing rags were bringing about $2 to $3 a ton over the ceilings. However, not much activity was reported as many sellers feel, it is said, that prices may go higher in the immediate future.

Warren Prepares Book on Business

BOSTON, Mass.—The S. D. Warren Company, printing paper manufacturer, has recently prepared a series of nine booklets on fundamental economics to be used in training courses given all new employes. The first booklet, "Business, its Nature and its Functions," approaches the problem of defining various economic terms.

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DIAMOND ALKALI COMPANY PITTSBURGH 22, PA. *and Everywhere*

Wisconsin Considers Limits on Cutting

MADISON, Wis.—Four public meetings were scheduled this week by the Wisconsin Conservation Commission, to discuss legal restraints on cutting immature timber. The meetings, each of which was to start at 1:30 in the afternoon in the county courthouse, were as follows: Wisconsin Rapids, November 18; Hayward, November 19; Rhinelander, November 20; Green Bay, November 21.

E. J. Vanderall, conservation director, in announcing the meetings on November 13, had expressed the hope that forest land owners, cutting operators and representatives of wood-using industries and of labor in those industries would attend. He emphasized that business and civic leaders in paper mill towns had a major interest, since the position of the commission is based largely on concern over future supplies of pulpwood.

The paper mills of the state annually use a pile of eight-foot wood, four feet high and more than 1,000 miles long. The part of this wood grown in the state has dropped from 26 to 21 per cent in ten years, and that drawn from upper Michigan decreased four per cent. Offsetting these losses were increases from Minnesota and Canada and even from Montana. There is an economic limit to the longer haul for more and more of this raw material for an industry which ranks second in the state in the number of wage earners and third in value of annual products, Mr. Vanderwall pointed out.

"Only a few museum pieces of our original forests remain and the raw material for our wood-using industries must come from the second growth stands. The commission does not favor complicated, mandatory forest practice rules. It does feel that public consideration should be given to the need for legal restraints on cutting the half-grown young forests which are developing as a result of protection from fire at the taxpayers' expense," he said.

Kimberly-Clark Group Starts Safety Contest

NEENAH, Wis.—Kimberly-Clark Corporation field service employes have started second half of a safety derby which will end December 31, in a contest conducted at the Kimberly, Niagara, Appleton, Atlas, Niagara Falls, Kimlark, Lakeview, Badger-Globe, and Neenah mill divisions.

The various mills have "horses" named for Kentucky derby winners. The object is to run 30 consecutive calendar days without a lost-time accident to complete a mile in the race. If one unit has a lost-time accident during the derby, it starts the day following the accident on a new 30 mile stretch. One 30-day stretch or a mile must be completed to place for winnings.

Lakeview Supervisors Open Winter Meetings

NEENAH, Wis.—The Kimberly-Clark Corporation Lakeview Supervisors' Club met Thursday evening, November 14, at the Valley Inn, with Edward H. Voigtman, member of development staff manufacturing, and John C. Bletzinger, a representative from the creped wadding finishing department, as the speakers.

Educational meetings of the club started officially Tuesday evening, November 12, in the conference room at the Kimberly-Clark main office, with John Schiebler as leader and coordinator. About 45 members from operating, engineering, and personnel departments attended. This was the first 10 weekly training sessions to continue through the winter. The subject of the first meeting was "The Foreman as a Businessman."

Among the speakers to be featured during the series will be Henry Boon, William Kellett, John Simonich, F. W. Werling and Frank Shattuck.

The second training group held its session the evening of November 13, with Richard K. Neller as leader, the topic being "Business Organization." Mr. Neller is assistant to Ernst Mahler, executive vice president of the corporation.

Manufacturers Find Wausau Future Bright

WAUSAU, Wis.—A bright future during the next few years was forecast last week for this city and its surrounding territory, in a special review issued by the Wisconsin Manufacturers' Association. The review shows that industry is well-diversified. It also pointed out that the paper and wood processing industries and metal working industries which are expected to be unusually active are well represented in and around Wausau.

As far as the pulp and paper industry is concerned, an almost identical situation exists at Wisconsin Rapids, a similar review by the association for that city indicates.

Thilco Foremen Elect Chopin

KAUKAUNA, Wis.—Carl J. Chopin was elected president of the Thilco Foremen's Club of Thilmany Pulp and Paper Company at its regular dinner meeting Monday evening, November 11, at the Elks Club. He will be installed with other new officers at the club's January meeting. He succeeds Frank X. Kreiling as president.

Other officers elected were: Ray Schmalz, succeeding Mr. Chopin as vice president; William W. Owens, succeeding Norbert Gerend as secretary, and Clayton Kiffe, succeeding Paul H. West as treasurer.

Alaska Is Optimistic Over Pulp Prospects

JUNEAU, Alaska—Plans are declared to be well advanced for sulphite pulp and newsprint paper production in Alaska "at the earliest possible moment" by two concerns which contemplate investments of about $25,000,000 each, it was announced by George Sundborg, general manager of the Alaska Development Board, on his return to the territory from conferences with management groups in the states. In addition to the two concerns whose plans are virtually complete, at least three others are showing definite interest in coming to Alaska he said.

Together with Col. Henry Clark, whom he has succeeded as Development Board executive, Sundborg spent five weeks calling on Alaska industrial prospects in Seattle, Portland, San Francisco, Los Angeles, Washington, New York, Boston and Chicago. Everywhere a keen interest in Alaska and its opportunities was evidenced, Sundborg said.

The recent increase in the ceiling price of newsprint to $85 a ton has caused the industry to look more closely at the possibilities of Alaska, he reported. A decision is expected shortly from the two groups whose plans are farthest advanced. It would require at least two years for a mill to get into production from the beginning of construction.

Mr. Sundborg said the Alaska Development Board is working closely with the potential pulp manufacturers and assisting them in working out satisfactory contract arrangements with the United States Forest Service, in acquiring sites, obtaining data on power and process water, enlisting the interest of publishers who will be customers for the finished product, seeking a solution to the transportation problem, and numerous related matters.

Competition from a proposed Canadian pulp and paper development on the west coast of Vancouver island is worrying Alaska prospects at the present time, he said. The Canadian government will, in effect, subsidize a mill there by offering power from the Campbell river at considerably below the cost at which such power could be delivered by private capital.

To offset this, potential Alaska manufacturers are seeking concessions from the Forest Service as to cutting practices over the period their large initial investment in mills will be amortized. Mr. Sundborg reported that he had discussed this matter in Washington with Lyle Watts, Chief of the Forest Service, and with Secretary of the Interior, J. A. Krug, who has pledged his assistance in obtaining contract provisions which would insure early pulp and paper development in Alaska.

Question:

How good is peroxide-bleached groundwood paper for color reproduction?

Answer:

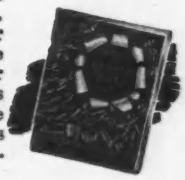
ST. REGIS makes it for color-wise *Family Circle!*

"Color's especially important to us," reports big homemakers' magazine. "That's why we use St. Regis paper made from groundwood bleached with the Du Pont Peroxide Bleaching Process!"

"Good color technique has played its part in building our circulation of more than 1,649,000 copies per month!" a Family Circle Magazine executive said recently. "Four-color pictures of tasty foods and attractive homemaking ideas have helped win us many lasting reader-friends. That's why we're using peroxide-bleached groundwood paper made by St. Regis Paper Company. This paper is bright, white, opaque, bulky and strong. It's reasonable in cost. And, most important, it gives sharp, bright color reproduction as well as black-and-white."

St. Regis says: "Many big markets are waiting for papers made with peroxide-bleached groundwood. We've been producing pulp for such papers since 1941, using the Du Pont Peroxide Bleaching Process. Currently, we are expanding facilities at Deferiet, N.Y., to produce more and more peroxide-bleached groundwood."

MAKE PAPERS of the same brightness as other types for less cost . . . brighter papers for no extra cost . . . considerably better papers for only slightly higher cost . . . using the *tried and proven* Du Pont Peroxide Bleaching Process! Our new book, "More and Better Paper from the Woodpile," tells many advantages you can get using this process in your plant. Write *today* for your free copy! E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.



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. . . THROUGH CHEMISTRY

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sodium peroxide.

"ALBONE" 35
35% hydrogen peroxide.

Puget Sound Pushes Its Pulp Output Up

BELLINGHAM—Puget Sound Pulp & Timber Co. reports a net profit of $784,622, or $2.25 per common share, for the first nine months of 1946, which compared with $326,585, or 84 cents a share, in the first nine months of 1945. Net profit for the third quarter of 1946 amounted to $436,784, in comparison with $253,530 in the second quarter, $94,308 in the first quarter, and $115,172 in the third quarter of 1945. Earnings per common share were $1.29 in the third quarter of 1946, 72 cents in the second quarter, 24 cents in the first quarter, and 30 cents in the third quarter of 1945.

Pulp production rose to 23,537 tons in the third quarter, from 19,817 tons in the second quarter and 15,403 tons in the first quarter, and compared with 21,464 tons in the third quarter of 1945. Production of 58,757 tons for the first nine months of 1946 was in comparison with 67,304 tons in the like period of 1945.

September business was benefited by a 10-percent increase in the sales price of pulp, effective September 5, amounting to about $8 a ton on the company's product.

Net sales and other revenue amounted to $4,838,835 for the first nine months of 1946, against $4,965,718 in the comparable period of 1945. Profit before provision for Federal taxes amounted to $1,265,520 in the first nine months this year, compared to $759,468 last year. Provision for Federal taxes amounted to $480,898 for the first nine months this year, against $432,883 in that period of last year.

Quakers to Dine January 8

PHILADELPHIA — The annual meeting, reception and dinner of the Philadelphia Paper Trade Association will be held on Wednesday, January 8th, 1947, at the Warwick, marking the forty-third anniversary of the association.

Weiner Enters Paper Field From Hartford Retail Board

HARTFORD, Conn. — Henry H. Weiner, manager of the Retail Trade Board of Hartford Chamber of Commerce since 1939, has resigned to enter private business. Mr. Weiner has purchased an interest in the Central Paper & Bag Company, 207 State street, and will become actively associated with the firm in the near future.

A graduate of Yale University and Harvard Graduate School of Business Administration, Mr. Weiner engaged in the merchandising field in New York and Boston before coming to the Chamber. He entered the Navy in 1942 and served as supply officer at Boston and later in the Naval supply depot at Bayonne, N. J., where he also served as instructor for supply officers.

Arabol Votes Bonus To Working Force

NEW YORK—The Board of Directors of the Arabol Manufacturing Company has voted a two-weeks' salary bonus to all employees having one or more years of service and pro rata to those with less than one year's service. This is in addition to the profit-sharing plan, inaugurated last year, whereby employees with two or more years of service participate in the profits of the firm up to twenty-five percent of the profits which are determined before taxes. Arabol is the oldest large firm in the adhesives business, supplying adhesives for a hundred different industries.

Swedish Chemical Pulp At 70 Per Cent Capacity

WASHINGTON, D. C.—Production of market chemical pulp in Sweden was approximately 880,000 short tons during the first half of 1946, according to a report to the Department of Commerce. At that time, the pulp industry was operating at about 70 percent of capacity.

Exports of chemical pulp were in excess of production during the first 7 months of 1946, and, at the same time, stocks on hand were reduced considerably. The domestic market is taking more pulp at the present time than it took before the war. Domestic consumption was nearly 176,000 short tons during 1945, compared with 82,500 tons during prewar years. Consumption in 1946 is expected to remain at 1945 levels. Of the total 1945 consumption of pulp, 165,000 tons were used by the paper mills.

Production of paper is expected to reach nearly 990,000 short tons during 1946, of which 550,000 tons will be consumed within the country. Exports of paper and paper board totaled approximately 228,000 tons during the first half of 1945, about half of which was wrapping paper. Only about 50,000 tons were exported during the corresponding period of 1945, newsprint in the amount of 24,000 tons representing the largest share of this trade.

United Wallpaper Sales At $3,662,000 for Quarter

CHICAGO—Net sales of United Wallpaper, Inc., and domestic subsidiaries for the first fiscal quarter ended September 30, 1946, totaled $3,662,000. Net profit before taxes was $785,000. Net profit after taxes was $478,000, equivalent to 39 cents per share of common stock outstanding.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending November 16, 1946

STOCKS

	High	Low	Last
A.P.W.	5¾	5	5⅛
Armstrong Cork Co.	48	46½	46½
Celotex Corp.	27⅝	25½	26⅛
Celotex Corp., pf.	21	20¼	20¼
Certain-Teed Products Corp.	19⅛	17⅛	17½
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	26	23½	24½
Champion Paper & Fiber Co., pf.	112	111	112
Congoleum Nairn Co.	27¾	26	26
Container Corp. of America	44½	41	42
Continental-Diamond Fibre Co.	9½	9⅛	9⅛
Crown-Zellerbach Co.	30⅛	28¾	29⅞
Crown-Zellerbach Co., pf.	105⅝	105	105½
Dixie Cup Co.	33	30¾	32
Dixie Cup Co.-A	52½	52	52
Flintkote Co.	30¼	27⅜	27⅜
Flintkote Co., pf.	108½	107	108½
Robert Gair	8⅞	8⅛	8½
Robert Gair, pf.	20½	20⅛	20½
International Paper Co.	48¾	46	48⅛
International Paper Co., pf.	105	104½	105
Johns-Manville Corp.	128½	126¾	127½
Johns-Manville Corp., pf.	120	120	120
Kimberley-Clark Corp.	24¾	24	24
Mac Andrews & Forbes	36⅛	34	34
Mac Andrews & Forbes, pf.	155	153¾	153⅜
Masonite Corp.	53	51	52½
Mead Corp.	22	21⅛	21⅞
Mead Corp., pf. 4¼	107	105¾	107
Mead Corp., pf. 2	49¼	48¼	48⅜
National Container Corp.	32⅜	30½	30½
Paraffine Companies, Inc.	65	65	65
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	20	18	19
Rayonier, Inc., pf.	35¼	32½	33
Ruberoid Co.	53	51	51
Scott Paper Co.	46⅜	45	46
Scott Paper Co., pf.	103¼	103	103
Sutherland Paper Co.	44¾	42¼	44¾
Union Bag & Paper Corp.	29¼	27¼	27½
United Paperboard Co.	12¼	11½	12¼
U. S. Gypsum Co.	112	108	112
U. S. Gypsum Co., pf.	192	192	192
West Virginia Pulp & Paper Co.	39½	38½	38½
West Virginia Pulp & Paper Co., pf.	....	....	....

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3¼s '60	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	103⅛	103⅛	103⅛
International Paper Co. 5s '47	....	....	....
Mead Corp. 3s '66	103⅝	103⅝	103⅝

New York Curb Exchange

High, Low and Last for Week Ending November 16, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	40½	40	40
Hummel-Ross Fibre Corp.	18½	16	17
St. Regis Paper Co.	9⅞	9⅛	9⅛
Taggart Corp	7	7	7

BONDS

American Writing Paper Co. 6s '61	....	....	....

American Anode latices and mixes

...the **MODERN** *way to coat and impregnate paper and textiles*

★What type of material do you need to solve your coating and impregnating problems? GEON, HYCAR, Saran, neoprene, GR-S, natural rubber? American Anode offers water dispersions of all these products, individually or in combinations for coating and impregnating paper and textiles the *modern* way.

And while these materials are helping you solve product problems, they may help solve production problems, too. That's because American Anode water dispersions are so safe and easy to use—no dangerously explosive solvents to be reckoned with—no cumbersome and costly solvent recovery systems.

Why not take advantage of American Anode's years of experience . . . its constant, up-to-the-minute research . . . its unusually complete development facilities . . . its honest desire to help you, in solving existing problems or even in starting a new business? For more information about this new and *modern* method of coating and impregnating, please write Dept. AD-12, American Anode, Inc., 60 Cherry Street, Akron, Ohio.

The American Anode laboratory in Akron is equipped with the latest and most modern paper testing equipment, and is staffed with people who know how to use it.

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NATURAL AND SYNTHETIC RUBBER LATICES, WATER CEMENTS AND SUSPENSIONS

Canada's Railroads Now a Bottleneck

TORONTO, Ont. — Just when the future of the pulp and paper industry was beginning to feel comfortable over the fact that strikes in the bushlands have been settled and an adequate supply of pulpwood seemed assured for next year's operations, another bottleneck develops. Recently the Pulp and Paper Association was moved to address the railroads in an appeal to supply more freight cars to move the pulpwood to the mills. There has been a record pulpwood cut this autumn, but the railroads were able to hold out little hope that more freight cars could be provided and suggested that the industry make use of flat cars with racks.

About 10 percent of all pulpwood cut in Canada each year is normally moved to the mills over railways. Representatives of the industry claim that unless 350,000 cords move to domestic mills before December 15, the industry will be obliged to scale down production next March or April. The cut this season is estimated at 1,350,000 cords, so that there will be another million cords to move to the mills later, by rail and water.

Pulpwood is usually brought out before the freeze-up so that it can be barked before the cold weather and added to the stockpile. It is claimed that unless more freight cars can be obtained there will not be enough barked pulpwood on hand to keep the mills going at present capacity and that some mills might have to shut down entirely for a period. Pulpwood brought to the mills by water does not normally reach the mills until May. If sufficient cars can be secured to keep the mills running until the "drives" begin to arrive in May, the situation will be saved.

Another factor calculated to stimulate interest in the pulp and paper industry at the moment, is the probable effect of the latest U. S. decontrol measures, as Canadian exports of lumber, woodpulp, pulpwood, newsprint and other paper products will enjoy a free market there with no ceilings except the prices the consumers are prepard to pay.

For the time being, Canadian pulp and paper companies are disposed to await further developments across the line. They are particularly anxious to learn what effect decontrol is going to have on Scandinavian shipments. It is assumed that the only reason shipments from northern Europe have been so small in recent months is that the prices have not been attractive and that without controls the price will automatically move upward and thus bring the Scandinavians back into the U. S. market. Any increases in pulp and paper prices for Scandinavian companies selling the U. S. market would be the signal for Canadian companies to begin thinking about revised prices for their products in that market.

Consolidated Gives Park To Portage County

STEVENS POINT, Wis.—The Consolidated Water Power and Paper Company, through its president, George W. Mead, has donated a 40-acre tract of wooded land on the west shore of Lake DuBay, about 14 miles from Stevens Point, to Portage County for park purposes. Announcement to this effect was made last week by F. J. Schmeeckle of the county board's parks committee at the start of the supervisors' annual fall meeting.

"This is on one of the prettiest spots on Lake DuBay," Mr. Schmeeckle told the board. "It is a valuable piece of land and I have been informed that Mr. Mead refused a $5,000 offer by commercial interests for the land. Mr. Mead wants to maintain the beauty spots on the lake, and there are no strings attached to the offer."

Mr. Schmeeckle asked the board to provide funds to lay out the land in what he called "functional areas." He said the new park will have a lake front of about 80 yards and that the lake level along the areas will be steady and subject to little fluctuation.

Demand Stays High In Indianapolis

INDIANAPOLIS--A continued demand for paper and paper products continued to sweep this territory last week with supplies restricted. Election results apparently failed to affect business generally. Removal of price controls on virtually everything but rent and two other items is expected to further stimulate business and prices this coming week are likely to react sharply upward. Paper manufacturers long have contended they have been unable to make a reasonable profit under OPA price restrictions.

Publishers continue to cry for newsprint and are not particularly concerned about the price, apparently. However, they are unable to secure the supplies they need and must perforce continue to turn down some nice advertising. However, they are eyeing the wood pulp situation eagerly with the hope that something can be seen which will indicate some increase in supplies.

Power Transmission and Conveyor Catalog

"Off the shelf service" is the big feature of a new general catalog just issued by the Patron Transmission Co., 120 Grand St., New York City. The Company distributes many nationally known lines of speed reducers, gears, belts, chain drives, bearings, flexible couplings, pulleys, electrical motors, power and gravity conveyors and many other needed items. Complete descriptions, data and prices are included on each item. Ample stocks of all items assure immediate delivery.

Monon's Barriger Tells Rail Troubles

OSHKOSH, Wis.—About two hundred transportation executives from Wisconsin, Illinois and Minnesota attended the tenth annual dinner of the Fox River Valley Traffic Club here Tuesday evening, last week. The principal speaker was John W. Barriger, Chicago, president of the Monon railroad. He declared that the possibility of strikes constituted the greatest threat to prosperity in 1947.

Mr. Barriger said that transportation is second only to agriculture in the nation's economy. He asserted that the principal railroad troubles now come from "maladjustment of wages to rates and operating costs."

Officers for next year are: R. H. Lorenz, Menasha, president; A. V. Moriarty, Appleton, first vice president; O. E. Breitengross, Fond du Lac, second vice president; L. M. Pointer, Appleton, third vice president; C. J. Braun, Neenah, fourth vice president; W. J. Hildebrandt, Menasha, secretary, and Arthur Spanbauer, Oshkosh, reelected treasurer. New directors include Carl Springborn and E. H. Schwab, both of Oshkosh; William Remick and C. B. Brossel, both of Menasha.

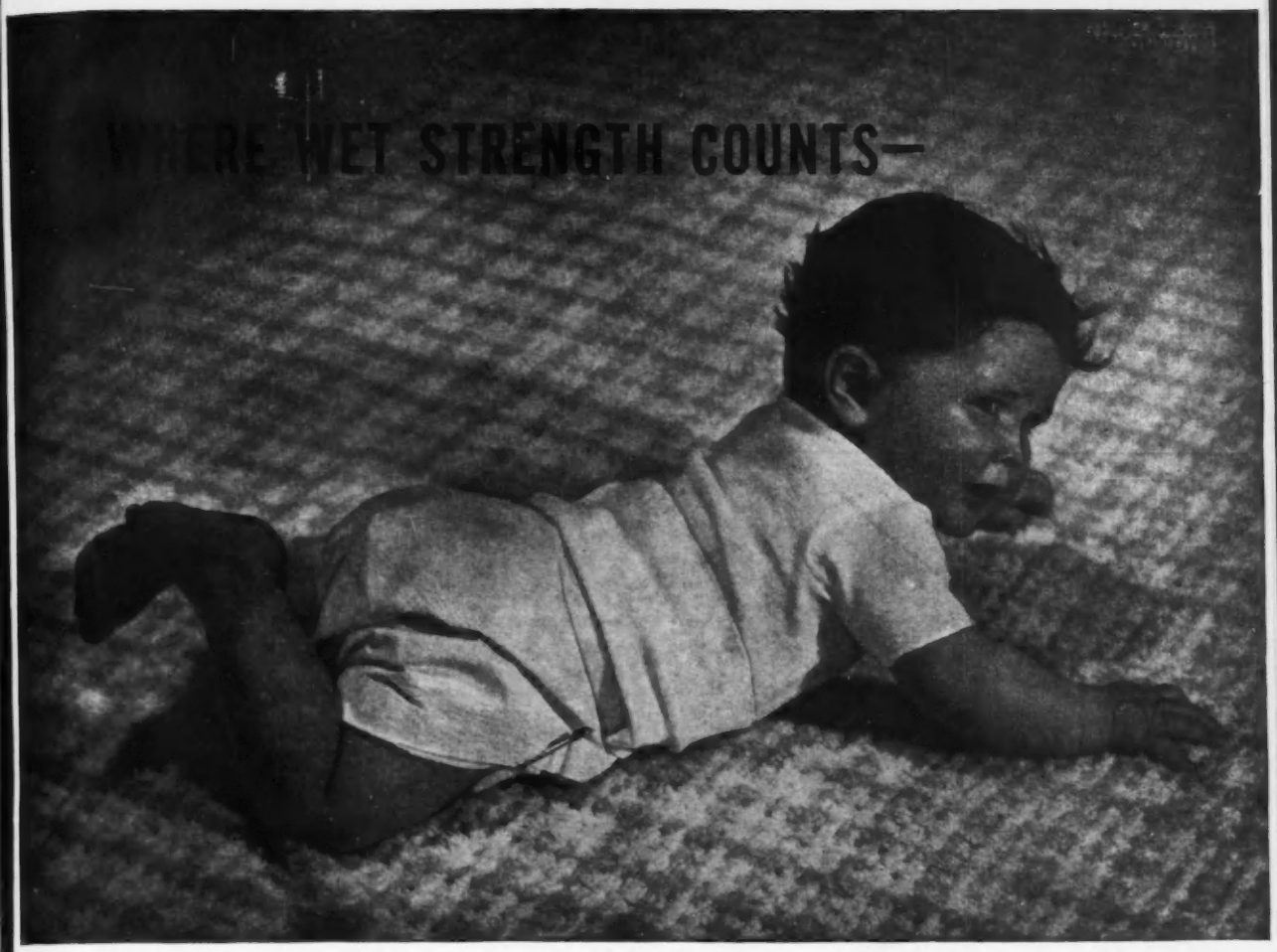
India Expects to Receive 32,500 Tons of Newsprint

WASHINGTON, D. C.—India will receive about 32,500 tons of newsprint during 1946, as a result of the efforts of the Indian Newsprint Delegation which recently visited the United Kingdom, Canada, Sweden, Finland, and the United States, according to a report to the Department of Commerce. This quality falls short of the average prewar consumption by about 8,000 tons.

Consumption of newsprint will continue to be restricted by quotas allocated at present, and any surplus over and above requirements for a reasonable period will be subject to such redistribution as may be ordered by the Government of India.

Arch Hepburn Joins Schwarz To Expand Specialty Line

CHICAGO — A. G. Hepburn, one of the most popular and active members of the western division of the Salesmens Association of the Paper Industry and of the Chicago Professional Paper Group, began his new duties with the Schwarz Paper Company, Chicago paper jobbing firm, during the past week. Familiarly known to his many friends as "Arch," Mr. Hepburn was with the Tomahawk Kraft Paper Company for many years. He is to work on the expansion of the specialty paper lines handled by Schwarz, according to reports.



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There's no question that high wet strength is a *must* in paper diapers. And there's no question, also, that for this and many other applications, the UFORMITES increase wet strength with ease and economy.

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UFORMITE 467 is particularly designed for Kraft stocks by beater addition. UFORMITE 470 is recommended for sulfite, rag and ground wood stocks. Neither resin affects the color, odor or taste of paper. Neither requires any special equipment or pre-handling.

You'll find the UFORMITES a low-cost, easy way to *up* paper value. Investigate them today and improve your paper production tomorrow!

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Irvington Varnish Readies Two New Buildings

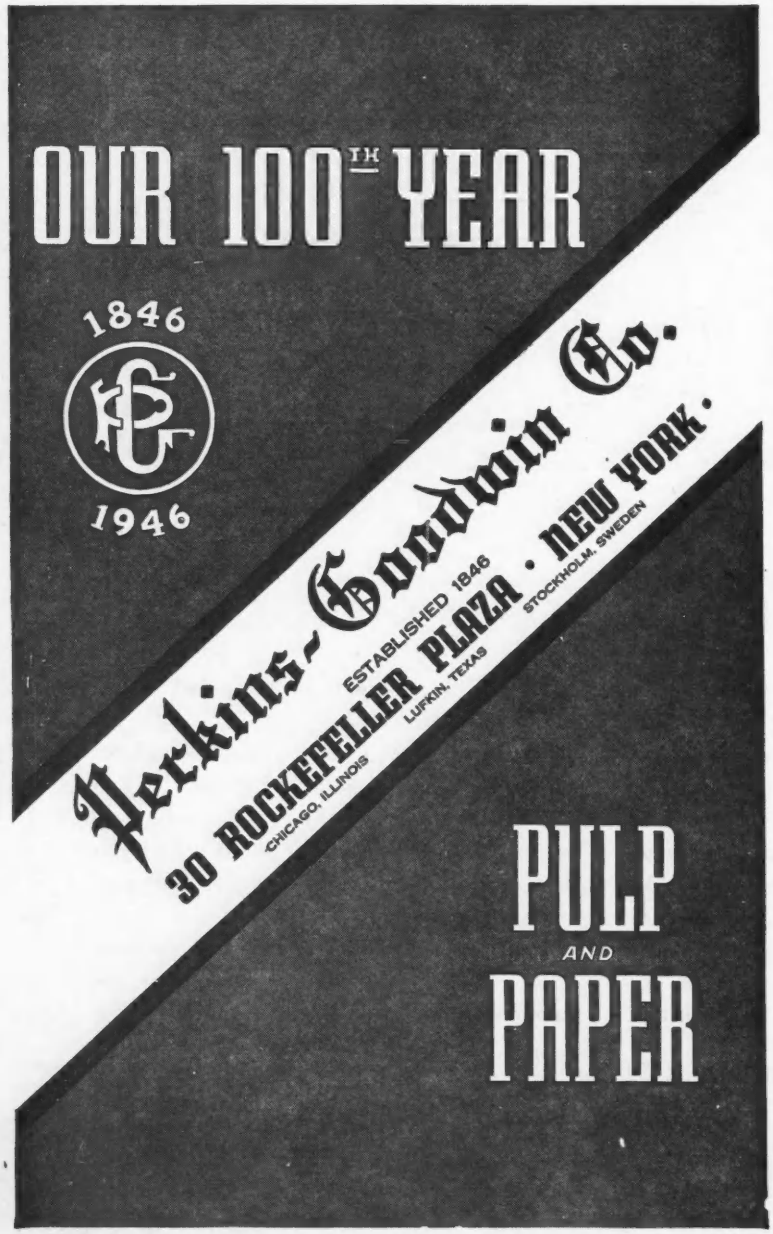
NEWARK, N. J.—A plant that will be used to process oils is now under construction for the Irvington Varnish and Insulator Company on a ten-acre site fronting Newark Bay by the H. K. Ferguson Company, industrial engineers and builders. The process in the new $1,500,000 facilities will consist of treating and reacting cashew nut shell liquid to produce various products sold under the tradenames "Cardolite" and "Harvel."

The Ferguson Company is also designing and building a plant for the Irvington Company for the manufacture of "Capseal" products, a line of coated papers, foil and cork combinations used in sealing glass containers. This building will more than double Irvington's present capacity, which is in keeping with the expanded activities of the glass container and allied industries.

The entire project will consist of 13 buildings for manufacturing and three tank farms for the storage of chemicals and raw and processed oils. Completion is expected about February 1, 1947.

Fischer & Porter Now Calls It Flowrator

HATBORO, Pa. — Fischer & Porter Company, manufacturers of variable area type flow rate instruments, heretofore called "Rotameters" has recently declared its intention to change the name of its products to "Flowrators." It is hoped that the new trade name will distinguish Fischer & Porter Company's products from all others and at the same time provide a more accurate and more appropriate term for area flow rate measurement instruments.



New Bulletin Describes Rapid-Wheel Devices

A single-page, double-sided bulletin shows the rapid-wheel gravity conveyor spur curve and the rapid-wheel gravity conveyor hinged section manufactured by the Rapids-Standard Company, Inc. of Grand Rapids, Mich., makers of material handling equipment. The bulletin describes the two special devices and their uses in a rapid-wheel conveyor installation and lists prices and specifications of each. The Spur Curve is used to facilitate sorting and rerouting of products to a spur line in a conveyor line, while the Hinged Section is specially designed to permit passage through a line of conveyor without removal of sections.

Goodrich Issues Plastics Glossary

CLEVELAND — A 12-page self-contained Glossary of Chemical Names, Terms and Phrases used in the plastic and rubber industries, published by B. F. Goodrich Chemical Company, Rose Bldg., is now available upon request to the company. The glossary is extremely valuable to plastic material manufacturers, fabricators and designers.

Activities Group Elects Rohe

NEENAH, Wis.—Peter Rohe was elected president of the Lakeview Kimberly-Clark Activities unit at a meeting Monday evening, November 11, at the Lakeview mill. Evan Jones was elected vice president; Marian Baer, secretary, and Clare Damon, treasurer. William Houpt was named chairman of the entertainment committee.

OBITUARY

William Littell Raymond

UPPER MONTCLAIR, N. J. — William Littell Raymond, 55, died at his home on November 11th. Mr. Raymond was born in South Norwalk, Conn. During World War I he went overseas with the 369th Infantry. He was a vestryman in St. James' Protestant Episcopal Church of Upper Montclair and was active in community activities.

For the past fifteen years, Mr. Raymond was the New York representative of P. H. Glatfelter Company, paper manufacturers of Spring Grove, Penna. He had been active in the Salesmen's Association of the Paper Industry and served as president of that organization in 1934.

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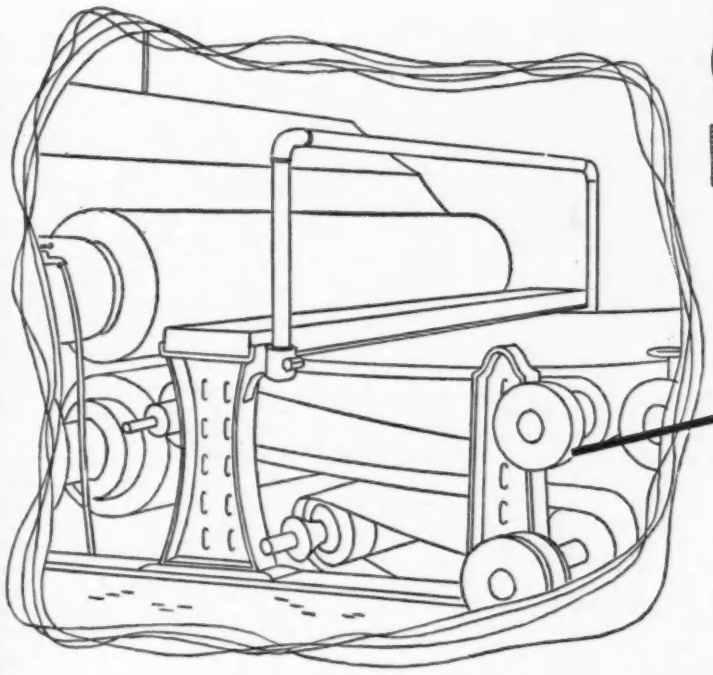

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Paperboard Group Elects G. E. Dyke

In interesting business sessions, which were well attended, members of the National Paperboard Association recently held their annual meeting at the Waldorf-Astoria Hotel. Officers elected to serve for the ensuing year were: President, George E. Dyke, President, Robert Gair Company, Inc.; Vice-President, W. H. Beckwith, Vice-President, Morris Paper Mills. Mr. Dyke, the new President, succeeds W. Irving Osborne, Jr., President, Cornell Wood Products Company; and Mr. Beckwith, the new Vice-President, succeeds Jos. S. Miller, President, New Haven Pulp & Board Company. Frederick G. Becker was reappointed Executive Manager and H. S. Adler was re-elected Secretary and Treasurer, David A. Sealey continues as Secretary of the Eastern Division with office in New York City. Grafton Whiting continues as Statistician and Alvin A. Newburg and Warren F. Wescott as Assistant Statisticians with headquarters in Chicago.

The meeting carefully reviewed paperboard industry operations during the past year, the first post-war year, which have been conducted under a mass of difficulties and uncertainties. These differences and uncertainties have culminated in strikes in many major industries, including the coal industry, the railroads, the electrical industry, and many other industries essential to the national economy.

It was emphasized through reports made at the meeting that the paperboard industry has also been under a severe handicap due to the fact that many of its raw materials; namely, wastepaper, pulpwood, pulp and chemicals, as well as experienced and hard working labor, have been in insufficient supply.

Production figures announced at the meeting definitely showed that the paperboard industry, although continuously confronted with severe shortages, has responded energetically to supply the essential demands for its product. Cumulative paperboard production for the first ten months of 1946 was announced at 6,998,722 tons, which is 3% ahead of the same period of 1944, heretofore the highest production year. Total paperboard production for the year 1946 was estimated at a figure slightly in excess of 8,200,000 tons, which would be a new all-time record.

Retiring President, Mr. W. Irving Osborne, said in his report to the membership: "We are thoroughly in favor of producing the needed gypsum board for the Veterans' housing but it is an inexcusable abuse of the governmental power to deprive regular users of paperboard of a substantial portion of their supply in order to run the gypsum board industry at 25% higher capacity than they ever produced before without any direct controls on the resulting gypsum board. In addition, the general taxpayer is paying for the privilege of so substantially increasing the profits of the gypsum industry."

Mr. Osborne further stated, "One of the troubles facing us is the necessity of a return to a higher standard of quality of our industry's products as rapidly as the normal flow of our materials is reestablished. At the same time as we reestablish the quality for which our products are noted we must maintain a firm grasp on our costs so as to retain the low cost production we hold in relation to other packaging materials."

After reporting the raw materials shortage as the industry's No. 1 problem, Mr. Osborne went on to say, "Our next most serious problem is that of labor, I feel that the manner in which the labor problem is handled during the next six months will influence to a large extent whether or not there shall be successful and economic production during the next few years. I also have the feeling that we should regard the labor movement, as we have seen it during the last few years, as something which can be turned to individual initiative."

In commenting on the current status of the industry, Mr. Osborne said, "Our current situation is one of that in many ways is pleasant to contemplate. We are about to experience the biggest year of paperboard production in the history of the industry. In spite of this heavy production, we have not met the requirements of our customers or the demands placed upon us. On January 1st of this year, unfilled orders totalled 526,900 tons and as of November 2nd, this order backlog increased to 601,800 tons. This portrays a picture of continued steady demands upon us as long as general business activity in this country remains at or near current levels."

In outlining the future of the industry, Mr. Osborne said, "During the coming years we will face the problem of substantially increased production capacity in our industry. Many new mills and paperboard machines are under construction at the present time and more are in the early planning state. It is incumbent upon all of us to carefully weigh and plan any expansion programs we undertake so that they may be economically sound and required by permanent increases in demends for paperboard."

Labor Board Supervises Marinette Elections

MARINETTE, Wis. — The National Labor Relations Board was to supervise an election November 19 and 20 here and at Menominee, Mich., in which production aid maintenance employes of the Marinette Paper Company were to indicate whether or not they wished to be represented by the International Brotherhood of Pulp, Sulphite and Paper Mill Workers Union (AFL) for collective bargaining purposes.

Harrington Stresses High Cost of Fire

NEENAH, Wis.—The need for eternal vigilance to protect land where timber is growing, particularly from little fires that deplete land of natural growth, was stressed November 13 by C. L. Harrington, superintendent of parks and forests for the Wisconsin Conservation Commission, in a talk at the inter-city service clubs' meeting at the Valley Inn. The session was sponsored by the Neenah Rotary Club.

The foundation for a "sensible and logical plan for production of forest growths has been laid but must be continued and improved, the speaker said. He said that the little fires do more damage because they kill off all the little trees, and explained the intricate system of lookouts, telephone lines, ranger stations and equipment now used to protect the 13,500,000 acres of land where timber is growing. Since 1936, there have been no sweeping fires in Wisconsin forest lands, he said.

He also discussed the state's forest nurseries and efforts to improve growth and rid areas of fungi and insects.

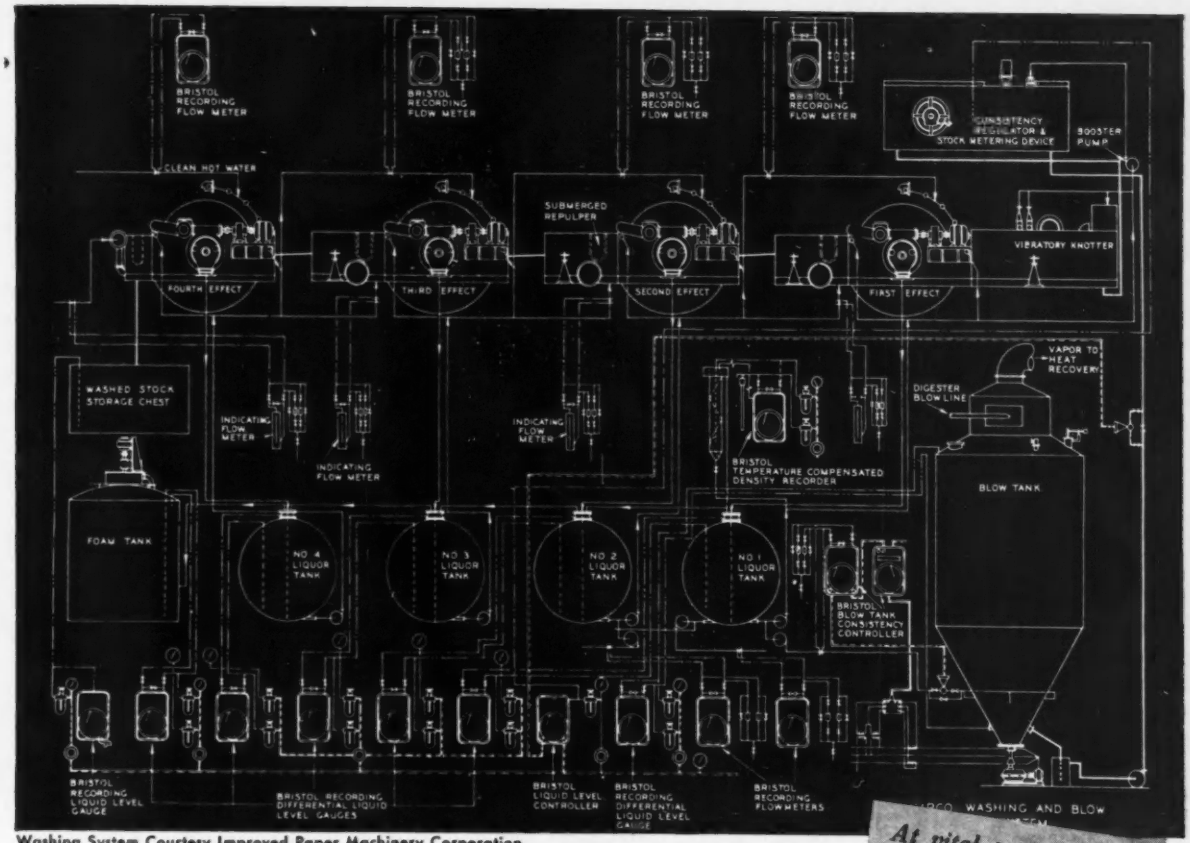
"Today Wisconsin as well as the country stands on the threshold of a tremendous development in forestry in the next 25 years, for it has become a business of land management and forestry that makes a valuable contribution to industry and communities," he declared.

Jones Operates School For Its Engineers

PITTSFIELD, Mass. — A ten-session course for draftsmen and engineers of the E. D. Jones & Sons Co., to discuss problems concerning the application of its machinery to the industry for which it is made, is being held Wednesday evenings at the Chamber of Commerce rooms. William Monks, chief draftsman; Dwight E. Jones, vice-president, and Robert Green, draftsman, are conducting the sessions. The course covers the application of its equipment to the industry, a history of the paper industry, a history of the company, drafting room practice and the background of preparing drawings for shop use.

Marathon Counsel Talks To Lake States TAPPI

APPLETON, Wis.—Dr. Joseph Rossman, patent counsel for Marathon Corporation, spoke before the Lake States Section of the Technical Association of the Pulp and Paper Industry Tuesday evening, November 12, after a 6:30 dinner, at the American Legion Clubhouse. His subject was "Current Patent Trends and Problems Affecting the Paper Industry." Dr. Rossman is an author, a former patent office examiner, and an authority in the field of patent law.



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Thorough washing of the pulp with hot water is required to produce a pulp of acceptable color. Yet the amount of water must be kept to a minimum in order to keep the liquor strength up. The material balance of both liquid and pulp must, therefore, be maintained within close tolerances.

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Here, in a single system, is striking evidence of Bristol's wide-ranging usefulness in modern process control. For further information, write for literature. Address THE BRISTOL COMPANY, 148 Bristol Road, Waterbury 91, Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ont., Bristol's Instrument Company, Ltd., London, N.W. 10, England.) West Coast: Branch Factory — 40 Berry St., San Francisco 7, Calif., Branch Office — White Bldg., Seattle 1, Washington. Lake Region: *Branch Factory and Office* — 351 East Ohio St., Chicago 11, Ill., Southern States: *Branch Office*— Comer Building, Birmingham 3, Alabama.

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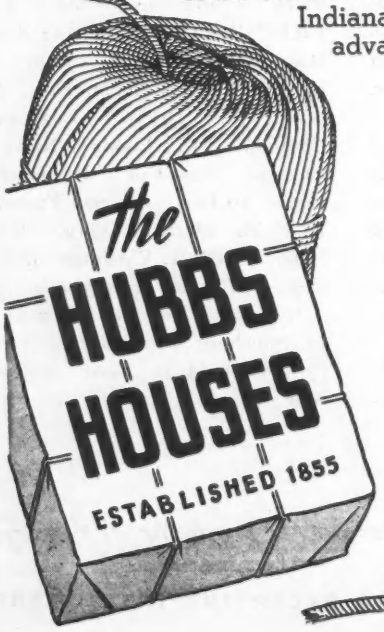

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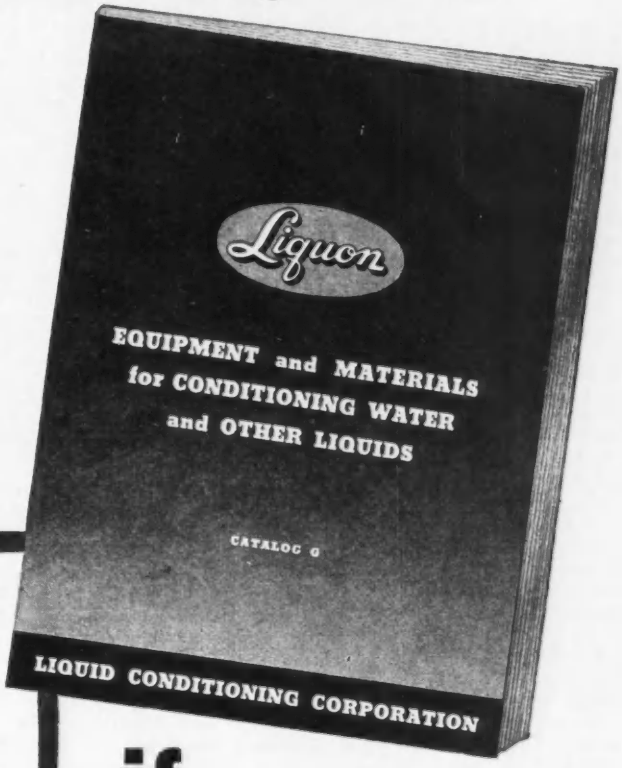
It clearly explains and compares the many different processes and describes the most modern and effective methods and equipment for softening and clarifying water, and also for removing undesired impurities or recovering valuable constituents from other liquids. It will help you to determine the most practical conditioning method for your particular requirements, and to check the possibilities for modernizing and improving your present process.



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Quebec's Premier Defines Pulp Policy

QUEBEC—Premier Duplessis, in a dinner address recently to delegates at Quebec Forestry Engineers Association's convention here, said his Government would not allow newspaper owners or publishers to secure in the province forestry concessions or cutting permits nor would they be permitted to own paper mills.

"If we were to allow newspaper owners and publishers to have wood limits or to own paper mills, it would not help the upkeep of freedom of speech and of the press in the province but would hamper it by giving owners-publishers the possibility of controlling the paper industry and newsprint markets."

The Premier said that the province would not concede to "speculators in the province or from outside" wood limits which would serve to obstruct fair competition in Quebec.

"There are a number of firms which need new concessions, and they shall get them; but I say beware of those who speculate on limits to be given certain companies because the Government will not allow the province's forests to serve foreign interests." Quebec forests were an asset of its people and would have to be kept as such, he said.

The province wanted to co-operate with the rest of Canada and exports in newsprint and newsprint raw materials showed its good will. But it expected to receive co-operation in return.

He said exports of newsprint were bringing to Quebec workers a full profit while export of raw materials left them not more than 50 per cent of possible profits. The rest went to foreign interests.

Asserting his party's policy of forest preservation, the Premier said he would make sure that a line be drawn between colonization and forest exploitation. Definite limits would be given colonization while wood cutting will be determined by Governmental permits.

"Those who have given the province their capital and their labor to build up an industry and provide work for its people will get co-operation from this government," he said.

Paper Mills Increase Use Of Electrical Energy

WASHINGTON — The paper industry attained a peak use of electricity in 1946, of 12,153,575,000 kilowatt hours, according to an analysis of various major industry requirements of electrical energy, prepared by the Federal Power Commission. This industry used 11,444,689,000 kilowatt hours in 1944, and 10,005,735,000 kilowatt hours in 1940.

Vancouver Finishes 3 Big Digesters

VANCOUVER, B. C.—Vancouver Iron Works Ltd. has now completed the construction of three 80-ton pulp digesters, which are amongst the largest welded pressure containers ever built in Canada.

During the announcement on the completion of the work, William T. Fraser, managing director of the Vancouver, B. C. plant of Vancouver Iron Works Ltd., said the digestors were built for installation in the Port Alberni mill of Bloedel, Stewart & Welch. Two of the big units have already been delivered to Port Alberni, and the third, at the moment of writing, is ready awaiting shipment. Each of the digestors are 11 feet in diameter, 55 feet long, and are constructed of 1⅝ inch plate.

Mr. Fraser states his company is also working on a 25-ton boiler for a B.C. logging firm. This unit will cost $20,000. Since the war ended, Vancouver Iron Works' plant has constructed 15 of this type of large boilers for the logging industry.

Several major water-cooled boilers are also under construction at this plant. One of these types is being completed for Vancouver General Hospital at a cost of $60,000, while a $80,000 water-cooled boiler is being built for the Pacific Veneer Co. for installation at their plant at New Westminster.

Mr. Fraser disclosed that the company had completed about 20 per cent of the Vancouver Water District's 11,000 tons of water pipe before the steel strike slowed down deliveries of plate steel. The contract was awarded some time ago. It will require 300 carloads of plate in all, and total cost of the order is $1,750,000. Plates are beginning to arrive again with the end of the strike, Mr. Fraser said.

TAPPI's Kalamazoo Section Meets On December 6

KALAMAZOO, Mich.—The Kalamazoo Valley Section, Technical Association of the Pulp and Paper Industry, will meet December 6, at 6:30 p.m., at the Columbia Hotel here. Dr. R. F. Spencer, Dow Chemical Co., will talk on Theoretical Considerations of Problems Relating to Flow Paper Coatings. Coming from a company which has made great strides in coating, Dr. Spencer's talk is expected to be very stimulating. Dr. Spencer will also discuss a display of various viscosimeters which will be on hand.

Gilbert Stevens, manager of Pulp and Paper Products Research, Minnesota and Ontario Paper Co., will be the second speaker of the evening. His topic will be, What Management Expects of Research on Coating Papers. Both talks will be followed by a question period in answer to queries submitted by members of the Valley group.

State Department Lists Paper as Bargaining Item

(Continued from page 11)

Glassine Paper	3c per lb. and 15%
Vegetable Parchment Paper	2c per lb. and 10%
Articles of papers in this paragraph	5c per lb. and 20%
Basic Paper for Blue or Brown Print	20%
Unsensitized Photographic Paper	5%
Writing valued at less than 50c per lb. weighing over 8 pounds per ream	3c per lb. and 15%
Bristol	2c per lb. and 10%
Manifold weighing 8 pounds or over	3c per lb. and 15%
Papeteries	30%
Hanging Paper Raw Stock	7½%
Strawboard including Straw Wrapping	15%
Blotting Paper	15%
Filtering Paper	5c per lb. and 15%
Filtering Paper valued over 75c per lb.	2½c per lb. and 7½%
Paper not specifically provided for (Includes such grades as coating raw stock, corrugating media, water leaf)	30%
Paper and Paperboard cut to shape	30%
Paperboard, vat-lined or similarly processed	$14.50 per ton, but not less than 15% or over 30%
Press Board and Press Paper	30%
Test and Container Boards, with bursting strength over 60 pounds	20%
Manufactures of Paper	35%
Cigarette Paper	45%

Any interested industry must file ten copies of its brief, one under oath, and at the same time file request that its spokesman be permitted to appear for his industry at the oral hearings in January.

In anticipation of this program, the Import Committee of the American Paper Industry has collected the basic material for use in an over-all industry brief, and for the divisional associations which are affected.

The list of items scheduled for negotiation is so large and present rates already so low that in many grades the State Department proposals closely approach a free trade basis. If such a situation is to be averted, the industry must be prepared to make the strongest possible presentation of its opposition to the Administration proposals.

Representative Knutson, slated to be Chairman of the Ways and Means Committee of the House of Representatives, has already announced that one of the first actions of the new Congress will be to investigate the working of the Reciprocal Trade Agreement Act, as a prelude to definition of a party policy. By the time the new Congress can proceed far on this course, however, the Import Committee suggests, the Administration program may be too far advanced to be checked.

Brazil Penalizes Evasion

WASHINGTON, D. C. — Certain imported book paper which was granted duty-free entry into Brazil when for use in the publication of books, by decree law No. 9763 of September 6, is subject to the payment of double duties if used for any other purpose.

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1946 Pulp Price Rise Likely To Halt At 10 Per Cent

By O. E. Swanson, Vice-President and General Manager J. Andersen & Co., New York

The recent Republican landslide was a protest vote by the American peoplt against too many laws and too much regimentation and government control. President Truman's courageous action to decontrol many commodities including wood pulp, paper and board to become effective on November 8, 1946 was cheerfully accepted by the industries and in line with the overwhelming Republican vote in favor of returning the management of business to the people.

The American people willingly submitted to almost all kinds of controls during the war but had gotten tired of listening to the gloomy predictions as to what would happen to them if they did not follow the advice of those heretofore entrusted with the management of business and labor. During the war, restrictive legislation was enacted which imposed oppressive regulations both on labor and industry and such actions were usually justified on the grounds that those in favor of the same felt they had a mandate from the people to deprive labor and management of their rights to carry on in accordance with their own judgment and to the best of their ability. Now, since the right to do so has been restored to the people, it is hoped they will strive to justify our added responsibilities and concentrate on constructive and speedy measures to bring about the return of a free and lasting economy.

In view of the unbalanced supply and demand position of wood pulp, it is reasonable to assume that prices on most grades will advance, and a price increase of about 10% on prevailing prices would undoubtedly be acceptable to all concerned, at least for the balance of this year and possibly the first quarter of 1947, although there appears to be those who favor price restraint in order to avoid recurrence of the upheaval in business following termination of World War I.

With regard to the European pulp situation, the Swedish government arrived at the remarkable decision a few weeks ago to reduce export prices on Swedish pulp and paper on contracts signed after July 31st, 1946, but to date this question has apparently not been definitely settled.

Prevailing prices on imported pulp are:

$89.00 on Unbleached Kraft Pulp
$94.00 on Unbleached Sulphite
$120.00 on Bleached Sulphite
$126.00 on Bleached Kraft Pulp

per ton of 2000# air dry weight on dock usual Atlantic and gulf ports. This action on the part of the Swedish government may be designated as planned economics but it certainly is difficult to consider it good business. In the above-mentioned prices, I calculated the inclusion of an average freight cost of about $9.00 per short ton and as the prices quoted are on docks mentioned, the inland U.S.A. freight costs are for buyer's account. Based on present costs of manufacture this price level must be unsatisfactory to Swedish pulp producers and as a consequence will have a tendency to retard production and exportation of Swedish pulp to the U.S.A.

Finland, on the other hand, is reported to favor higher prices running all the way from $128.50 to $165.00 per short ton, on dock. Other European countries do not seem to have any tonnage available for shipment to this market either for prompt or forward deliveries.

Since the revaluation of the Canadian dollar to parity of the American dollar, present prices are too low to stimulate an increase in woodpulp business with that country. Nevertheless, leading Canadian manufacturers have adopted the policy of caution coupled with their intention to cooperate with consumers because they realize the importance of smooth teamwork between sellers and buyers.

There will undoubtedly be unimportant spot and resales at whatever prices buyers can afford to pay and sellers are willing to accept, and whatever interpretations may be given to the recent political changes in the U.S.A., it is self-evident that anticipated price advances will soon become facts, but I do not look for a runaway market.

Taylor Instrument Sends Easterly to Seattle

ROCHESTER, N. Y.—James H. Easterly, newest member of the Taylor Instrument Companies' sales force, has just been established in the Northwest with headquarters in Seattle. Although this is his first territory, Easterly has been with the company since 1941. At that time he was connected with the petroleum sales division. He left for the Army in 1942 and was assigned to a weather detachment because of his knowledge of instruments. Upon discharge from the Army, he completed an eight months' training and refresher course at the home office before reporting to work in Seattle.

Easterly is a graduate of the University of Michigan with a degree in Mechanical Engineering.

Engineers Meet At Worthington Plant

HOLYOKE, Mass.—Nearly 100 of the 250 members of the Engineering Society of Western Massachusetts attended the monthly meeting which was held here Tuesday with the engineering staff at the Worthington Pump and Machinery Corp., acting as hosts. The day's program included a tour of the Worthington plant late in the afternoon followed by a dinner at the Hotel Roger Smith.

The principal speaker at the dinner meeting was Edward J. Schwanhausser, vice-president in charge of sales at the Worthington and also one of its board of directors. He had for his topic: "Compressors and Industry."

The society met here today for the first time since the close of the war. Previously all its sessions had been held outside the Holyoke area. Its members are drawn from all branches of engineering departments of the various plants throughout this end of the commonwealth. About 20 percent of the membership are Holyokers.

One of the society's aims is to keep members abreast with engineering advances in industry. For this reason the tour of the Worthington plant here was arranged to give the members showing the highlights of the modern machine tool facilities, excellent research laboratories and the manufacturing process of the Worthington air conditioning and refrigeration equipment, air compressors, rock drills, and air tools.

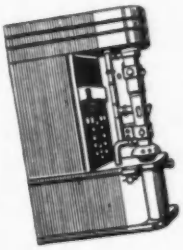
Expect Increase In Scandinavian Output

WASHINGTON, D. C.—Production of newsprint in the three Scandinavian countries of Norway, Sweden, and Finland has been forecast at between 455,000 and 505,000 metric tons during 1946, compared with approximately 400,000 tons during 1945, and 882,000 tons during 1937, according to a report to the Department of Commerce. Plants in these countries had facilities to produce about 965,000 tons in May 1946, at which time total factory operations averaged 48 percent of capacity. There were no stocks of newsprint on hand at the end of June.

Domestic consumption of newsprint in these three countries during 1946 probably will be from 171,000 to 176,000 tons, compared with prewar consumption of 128,000 tons. Swedish 1946 consumption alone is estimated at 130,000 tons, compared with 85,000 tons during prewar years.

Indications are that exports this year from these Scandinavian countries will total roughly 300,000 tons, compared with 738,000 tons during 1937. Although shipments to the United States will amount to only a few thousand tons during the last 6 months of this year, such exports are 1947. In prewar years, newsprint exports to the United States were around 240,000 tons a year.

THE ELECTRON MICROSCOPE



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BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Electron micrograph, showing dye crystals magnified 25,000 times

Unions Complain of Ontario Policy

FORT FRANCES, Ont.—By provincial consent, a fine grade paper and building board plant is operated by the Ontario-Minnesota Pulp and Paper Co. Ltd. in International Falls, Minn., with the help of Canada's standing forests. This was disclosed at the second day of a two-day session of the royal commission on forestry, headed by Maj.-General Howard Kennedy.

It was revealed, also, that the provincial government leased vast timber limits to the company, on which the sustained yield is double the company's capacity to handle, at one-tenth the standard ground rental.

The company, which operates a newsprint plant in Fort Frances, was given timber limits in 1942 of 4,350 square miles, together with reserve concessions of about 1,650 square miles, in the Ontario Lake of the Woods and Rainy River districts, on the understanding that all timber cut would be manufactured in Canada.

Two years later the company was granted permission by the provincial minister of lands and forests to export raw timber to the International Falls plant. A brief presented by T. A. Gladu, president of the Fort Frances local of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers (A.F. of L.) charged that, because timber is not being manufactured into the finished product here, "high-paid jobs do not exist in our Canadian mills."

Gladu stated 425 cords of spruce and 1,200 cords of poplar are ground weekly in Fort Frances and shipped across the river to be manufactured into paper and wallboard at International Falls, as against 1,200 of spruce ground and manufactured at Fort Frances into newsprint.

"This is because of U. S. trade barriers, due to high tariffs, on building board and high-grade and specialty paper entering the United States," he said.

"To finish these products requires highly-skilled and highly-paid help," he continued, "whereas the semi-manufactured product requires 90 per cent semi-skilled or non-skilled help."

Giving an instance, Mr. Gladu stated that, in November, the operation of three paper machines was curtailed from six to five days a week, because the mill at International Falls was short of ground wood to operate seven days a week, and some grinders at Fort Frances were converted from newsprint to wallboard. As a result, 80 men are now employed five days a week.

"The reason given us by the company was that a larger profit is derived from the wallboard," he said.

George Amidon, woods manager for the company, told the commission that permission to export raw timber was on a yearly arrangement with the department of lands and forests and that a small amount of jackpine (used for wallboard) was cut because it was overmature.

"My understanding was that when you applied for permission to export jackpine you said it would be taken in conjunction with the cutting of spruce and balsam," D. Guthrie, commission counsel, commented. He contended the company had cut timber in stands that were solely jackpine.

"Why is sulphite (produced in the U. S. plant and shipped to Fort Frances) not manufactured in Canada?" Mr. Guthrie asked. "It is not practical or feasible," replied Mr. Amidon.

"Why is the insul board not manufactured here?" "That is out of my field."

"You have, roughtly, 4,000,000 acres of land producing wood. What are the requirements for your two mills?" asked Maj.-Gen. Kennedy. "About 255,000 cords of wood a year, but we do not get it all from our own limits," replied Mr. Amidon.

"That amount reduced to cubic feet or solid wood means you are cutting a maximum of four and a half cubic feet per acre per year," Maj.-Gen. Kennedy observed. "It doesn't seem to me to be anything like the capability of the areas to produce. It appears you have more limits than you require or that you need more mills to use it up."

Mr. Amidon explained the company's limits are still being surveyed.

"You are not producing any great amount of lumber, but you are asking the government for permission to export a very considerable quantity each year?" asked Maj.-Gen. Kennedy. "Yes," replied Mr. Amidon.

"After making an agreement in 1942 on the premise that the lumber would be manufactured in the country, the company looked for exports in two years' time." "I would like to point out we haven't used as much jackpine as was available to our limits," said the witness.

Referring to a clause in the agreement which states that "All timber suitable for saw logs shall not be converted into pulp without the consent of the minister," Maj.-Gen. Kennedy asked: "Do you not think the best use of jackpine is in lumber, ties and poles?" He added: "You mentioned you were cutting jackpine up to 10 and 12 inches in diameter. I was on your operations last summer and saw prisoners of war cutting the most beautiful jackpine. It measured 16 to 20 inches." "I am not too familiar with the sizes they are cutting in Canada," Mr. Amidon stated.

Williams Shows Film On Paper's History

DALTON, Mass.—Terming paper "the most used product of man," Frank Williams, general superintendent of Crane & Company, gave Rotarians a history of the papermaking industry Sunday night through a brief address and a twenty-minute sound movie, entitled, "Paper, Pacemaker of Progress."

Prior to the screening of the film, Mr. Williams said that the early days of paper in this country found the industry centered in the Northeastern States. Since that time, however, a large part of it has left this section for the Southern and Northwestern States, due to both the cheap labor in the South and the extensive supply of certain wood, vital to the manufacture of pulp paper. The Negro labor has drawn a large group of papermakers away from New England, Mr. Williams believes. Furthermore, the systematic replanting of pulp trees would indicate that they have gone South to stay.

In the olden days of the industry a few hundred pounds of paper per week was considered to be high speed production, Mr. Williams told Rotarians. "Today, however," he said, "there are some plants in the United States that make as high as 1,500,000 pounds every 24 hours. He added that many new uses of paper are being discovered, many since the war.

The film depicted methods of papermaking, beginning many centuries ago, when it was first discovered by the Chinese. The history of the industry in this country dates back to 1690 when the first mill was established in Germantown, Pa. A small portion of the film was devoted to the first mill in Dalton, founded by Zenas Crane and some of the scenes in the picture were taken in the Dalton mills.

Norton Awards On New Bases

WORCESTER, Mass.—A new classification of awards will be made at the annual Norton Company service award dinner Wednesday in Worcester Memorial Auditorium. For the first time in Norton history, awards will be made to employes of 35 years' service.

There are ninety-eight men and women who have completed 35 years and are still working, and 42 on the retired list. There will be 53 awards for 25 years, 49 for 15 years, and 207 for ten years.

On the list of service awards also are 82 for 15 years and 44 for ten years for people employed in outside sales district offices and foreign plants. Interesting features have been prepared for this outstanding annual event.

THIS year's Christmas tree lights made by Noma will feature wire insulation made from GEON. They will be safer because the insulation is self-extinguishing in case of fire. The strings will be lighter weight, easier to handle because the insulation is thinner, smoother, more flexible, than old-fashioned insulation. They will last longer because the insulation resists wear, aging, heat, and flexing—won't ever get gummy, crack, or peel from the wire.

MODERN CHRISTMAS LIGHTS

Another interesting application for GEON raw materials

These properties, plus resistance to oils and greases, foods and chemicals, water, acids, mildew, sunlight, and most other normally destructive factors, have made versatile GEON the ideal material for literally hundreds of products in the home and in industry.

GEON can be pressure or injection molded, extruded, calendered or cast into sheet or film, applied as a coating to textiles, fibres, and papers. Products made from GEON may be brilliantly or delicately colored, flexible or rigid, clear or opaque. While we make no finished products from GEON, we'll be glad to work with you on special applications. Just write Dept. M-12, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

Geon
Polyvinyl Materials

B. F. Goodrich Chemical Company

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THANKSGIVING, *this year, finds many persons with little for which they are willing to be thankful. These persons speak of a World War III; they anticipate a continuous nation-wide series of strikes; and, in general, they believe our country to be headed for complete disaster.*

Sensible people, however, are thinking and planning for a prosperous future, filled with promise for those willing to expend the necessary measures of effort.

For these people, and for this reason, we are particularly thankful this Thanksgiving season. We are thankful because, as a part of American industry, we whole-heartedly believe that through honest co-operation, business, like the nations of the world, will find our tomorrows infinitely more worth-while.

The La Boiteaux Company, Inc.
CINCINNATI, OHIO

PYRIDOSE effectively and economically controls paper mill slime. It starts to work at once.

PYRIDOSE is more rapidly effective because its active ingredient is 140 times more soluble than other comparable agents. It is *deadly to common slime-forming organisms, in concentrations of as little as 1 part per million.*

A handy one-ounce packet of Pyridose—thrown unopened into the beaters or refiners—starts the treatment immediately.

No stopping of machines . . . no waste of material. More information from your nearest Mallinckrodt office today.

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Production, Prosperity and POWELL VALVES

The real wealth of a nation lies in its power to produce. And the greater the production, the greater the prosperity of its people.

Production depends on many things. Not the least of these is the efficiency of the equipment that controls the flow of the innumerable media that constitute the lifeblood of Industry.

Powell's contribution to national prosperity is a line of valves that is so complete that today there are Powell Valves adapted to *every* service in *every* branch of modern industry.

The Powell Line includes Bronze and Iron Valves of all required types, designs and sizes; Cast Steel Valves of all types in pressure classes from 150 to 2500 pounds; and a complete line of valves for Corrosion Resistance, including many special designs and made in the widest range of Pure Metals and Special Alloys ever used in making valves.

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DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

Catalogs furnished on request. Kindly state whether you are chiefly interested in Bronze, Iron, Cast Steel or Corrosion-Resistant Valves.

Fig. 1816—All Iron Gate Valve for 125 pounds W. S. P. Made in sizes 2" to 30", inclusive. Has flanged ends, bolted flanged yoke, outside screw rising stem and taper wedge solid disc.

Fig. 1259—All Iron Swing Check Valve for 125 pounds W. S. P. Made in sizes 2" to 12", incl. Has flanged ends, bolted flanged cap and regrindable, renewable iron disc. Disc, when wide open permits full, unobstructed flow through the valve body.

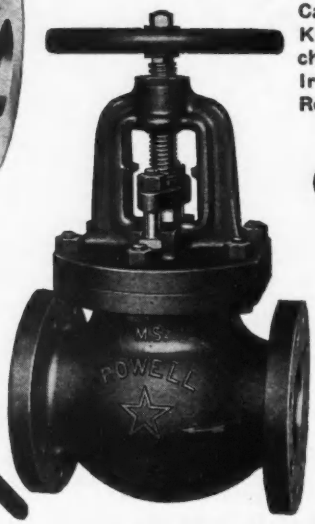


Fig. 457—All Iron Globe Valve. Has flanged ends, bolted flanged yoke, outside screw rising stem and regrindable, renewable iron seat and disc. Made in sizes 2" to 12", inclusive.

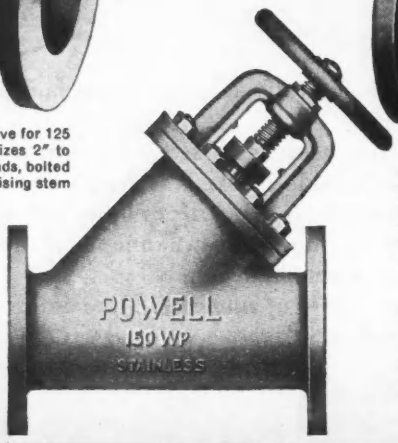


Fig. 1944—Large size 150-pound Stainless Steel "Y" Valve with flanged ends, bolted flanged yoke-bonnet and outside screw rising stem. Made in sizes 2½" to 12", inclusive.

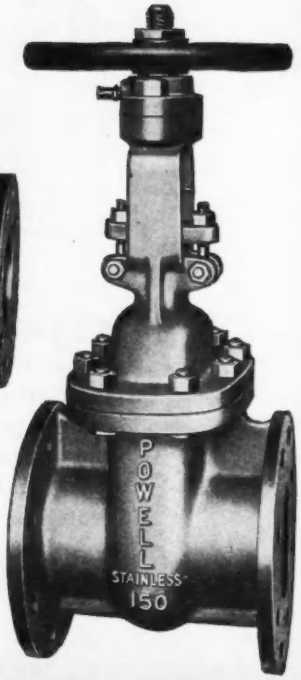
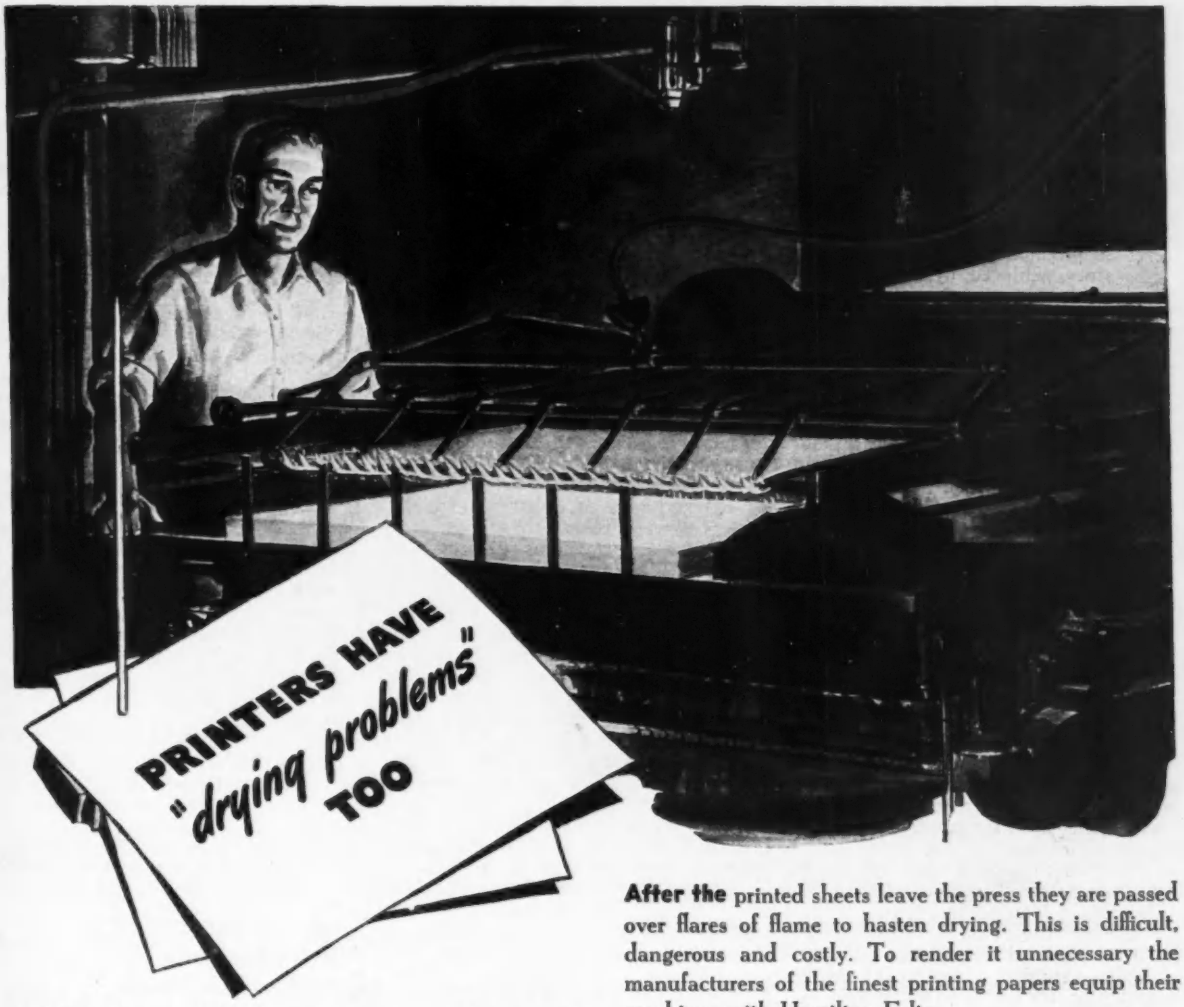


Fig. 2453-G—New Standard 150-pound Stainless Steel Gate Valve with flanged ends, bolted flanged yoke-bonnet, outside screw rising stem and taper wedge solid disc. Made in sizes 2½" to 8", incl.

POWELL VALVES

Printers frequently find it necessary to put their paper through a series of operations similar to those to which the manufacturer has subjected it at the paper mill.

They either "condition" it by storing it in a moist atmosphere or by humidifying the air in the press room by a continuous spray of water. This restores some of the moisture that was cooked out at the driers.

After the printed sheets leave the press they are passed over flares of flame to hasten drying. This is difficult, dangerous and costly. To render it unnecessary the manufacturers of the finest printing papers equip their machines with Hamilton Felts.

Hamilton Felts remove so much water at the couch that little direct heat is needed to complete drying. The resulting paper retains enough moisture to reduce the necessity for humidifying at the printing plant. Its surface is ideally adapted to close registry printing of the finest screens and for natural drying of the inks.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •

Modern Materials Handling Aids Better Production

CLEVELAND, Ohio — Making better materials handling pay a profit in increased production efficiency is a success story achieved by three leading paper mills through systematized use of Towmotor lift trucks for many difficult and tricky jobs. The "Do one job and do it better" efficiency slogan fits the experience of these firms with Towmotor, save for one exception. The Towmotor lift trucks are called on for many jobs and reports indicate that all are being done better. Savings in time, in money and in manpower are visible in many ways. The companies covered in this report are Hummel and Downing, Milwaukee; John Strange Paper Company, Menasha, and Thilmany Pulp & Paper Company, Kaukauna, all in Wisconsin. The report has been prepared by the Towmotor Corporation, Cleveland.

More than ordinary import may be attached to the experience of these companies in improving materials handling operations because these are the days when manufacturers in all fields are re-examining costs with a gimlet eye. Material and per hour labor costs have gone up to narrow the profit margin; and this margin, incidentally, is expected to become even narrower in the more competitive days ahead.

While the Towmotor lift trucks are performing the same basic jobs for each of these three companies, they are also handling a variety of additional jobs for each. This serves to emphasize the value of a handling system that is efficient with the plus quality of flexibility. At Thilmany, for example, one Towmotor serves frequently as a temporary "elevator" in the job of lowering steel drums of petrolatum to basement storage. On this one job alone, the use of Towmotor has saved over 90 per cent in man hours.

In the Hummel and Downing plant a Towmotor, equipped with a special scoop attachment, handles easily the huge piles of bulk waste paper dumped on the H and D dock every week. This Towmotor carries more than half a ton in one scoop-load directly to the baling machines. After baling, the Towmotor handles two bales in a single one-ton load.

Versatility Required

At all three plants Towmotor has been given the job of unloading raw materials, transporting these raw materials to storage or production, keeping production machines supplied and transporting finished products to storage or shipping docks. Versatility is a major requirement for each of these tasks because both raw materials and finished products differ widely in size, weight and shape.

Thilmany formerly had a considerable problem in removing salt cake from a full box car. Four men worked 13 to 14 hours each to complete the job, using manual methods. Today, a Towmotor equipped with a scoop attachment makes it possible for one man to complete the job in five hours, 15 minutes, less than one-tenth of the time formerly required. In addition to the positive time and labor saving achieved here, Towmotor operation has also saved thousands of dollars in freight and demurrage costs.

Hummel and Downing operates in a multi-story building where a steady, well regulated flow of raw materials and semi-finished products must be provided. Handling equipment must be able to transport materials ranging from a 4400-pound tank of chlorine to paper bags of adhesive. In addition to the job previously mentioned of transporting waste paper in bulk, Towmotor handles the baled waste paper with equal efficiency. In a typical operation a Towmotor Model LT-44 picks up and carries two bales totaling 2,230 pounds a distance of 80 feet in 51.6 seconds. In the warehouse, an LT-56 Towmotor carries five 400-pound bales of Kraft pulp in a single load, transporting them to the shipping dock in 2 minutes and 32 seconds. Savings are also effected in storage space where Towmotor versatility in stacking, tiering and maneuvering is put to daily use.

The John Strange plant has found Towmotor to be particularly effective in the job of loading both box cars and trucks for outgoing shipments of rolls of paper which are 96 inches wide, 50 inches in diameter and weigh up to 4,000 pounds. In loading these rolls in box cars with a Towmotor, two rolls are placed on the floor at one end of the car, with a third roll nested on top. This end of the car is only partially loaded to allow room for maneuvering. Seven rolls are then placed in position at the opposite end of the car, four on the floor and three nested on top. When this is completed, the remaining rolls are placed on a sloping board and literally "rolled" into the vacant spaces in the second tier.

Towmotor can load 16 rolls, totaling 64,000 pounds in 30 minutes. When 50-foot box cars are used, 18 rolls totaling 72,000 pounds are loaded. As much as a 90 per cent reduction has also been achieved in truck loading time at a special truck loading dock. To eliminate truck waiting time, Towmotors are used to transport rolls of finished paper from storage to dock. On a typical operation, Towmotor loads two 1800-pound rolls and five 2200-pound rolls in just 15 minutes, a 90 per cent reduction in time for a task which required 150 minutes under former methods.

Increased efficiency has been the overall result of Towmotor operation at these plants; efficiency making for a greater production potential of expensive machinery. In addition there are substantial savings in manpower and in the time required for formerly difficult and tedious handling jobs. Safety and improved worker morale are still further factors for which Towmotor may take credit.

A detailed analysis of Towmotor operation at each of the three plants has been put into printed form with illustrative photographs by Towmotor.

CPA Permits More Rubber In Paper Machine Aprons

WASHINGTON — An increase to 35 percent in natural rubber content of paper machine aprons, was authorized this week by the Civilian Production Administration, in a broad relaxation of restrictions on use of both natural rubber and synthetic. The previous limit for this purpose was 25 percent.

In addition, use of butyl synthetic rubber was permitted for the first time, in manufacture of paper machine aprons and on paper mill rolls. An increase to 35 percent natural rubber, from the previous 25, was also authorized for screen diaphrams for paper making equipment. Use of butyl for fly paper was authorized for the first time.

Askania Regulator Acquires Cram Control Patents

CHICAGO — A new consistency regulator has been introduced by the Askania Regulator Company which, at the same time, has completed the purchase of consistency control patents from the Cram Company of Appleton, Wis. Combining the operating principles covered by the former Cram patents with their own hydraulic control system, Askania officials state they have developed an extremely accurate and positive method for the control of thin stock consistency (as low as .1%) as required by the pulp and paper industry.

B. C. Loggers Plan to Combat Accidents

VANCOUVER, B. C.—Organization of a new safety department is being considered by the British Columbia Loggers' Association. The ratio of accidents in the industry is steadily increasing and recently the Association appointed a special committee, to investigate the possibilities of establishing a safety department. During the first nine months of this year accidents in the logging industry in British Columbia showed a 20 per cent gain.

Reduce Danger Of Suckbacks In Chlorine Lines

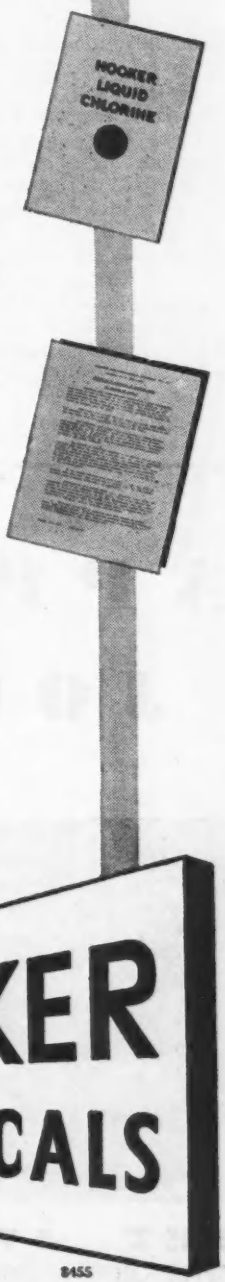
Are you experiencing suckbacks in your Chlorine lines when pressure is low? If so, you are probably finding it necessary to replace corroded valves frequently. There are methods of reducing the danger of these suckbacks, to get longer life from your valves, and reduce corrosion of your equipment.

Hooker Bulletin 208 prepared by our Technical Staff, gives clear directions on how to install a suckback pipe or where necessary, a vacuum break valve in your lines to reduce the corrosive effects of suckback. This is only one of a series of Bulletins that are helping pulp and paper makers get the most out of their chemicals and equipment.

The Hooker Liquid Chlorine Booklet is another Bulletin that should be in your chemical library. It contains general information about Chlorine, its shipment, handling and storage as well as particular information about its use in the pulp and paper field.

All Hooker Bulletins are available when requested on your letterhead. Send for these two now and for a list of the other Hooker Pulp and Paper Bulletins.

And for pulp and paper chemicals of uniformly dependable high quality, continue to specify Hooker Chlorine, Caustic Soda, Muriatic Acid and Sodium Sulfide as leading pulp and paper mills have been doing for years.



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Caustic Soda **Chlorine** **Muriatic Acid** **Sodium Sulfide** 8455

Kalamazoo Valley TAPPI Discusses Personnel and Chemistry

The November meeting of the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry was held at the Columbia Hotel, Kalamazoo, Mich., Thursday, November 7th. Dr. Harold C. Taylor, Director of the W. E. Upjohn Institute for Community Research, discussed the subject "Personnel and Chemistry." Dr. Taylor's experience with major companies has included personnel organization, wage analyses, and merit ratings.

Dr. Taylor stated in his discussion that the first thing a young chemist or young engineer should do was to get to be known as a person and a friend in his organization. He stated that this was difficult for certain types of people such as the frank individual, the man who is always right, or the sensitive type, but that a young man should realize that if he is one of these types he should overcome the weaknesses displayed by the type since only by doing so will he improve his status in his company to the point where he can expect normal progress. Dr. Taylor suggested that the young engineer or chemist ask for information and advice freely, but be somewhat careful about giving advice, that he should listen well, that he should give credit to others in his organization, and that he should give credit to the other man for his arguments. He should temper his approach for each individual when it is necessary and desirable for him to contact other members of his own department or members of other departments in his organization. It was emphasized that it is necessary for the young chemist to learn quickly as much as possible about his own department and about the company and organization as a whole. He should be practical and be especially cautious as to over-statements, be concise in his reviews of results of investigations, and be as nontechnical as possible when holding discussions with other members, especially nontechnical members of the organization. Dr. Taylar suggested that ideas should be sold from the lower groups to the upper groups rather than the reverse. Willingness to compromise and the ability to compromise on certain questions are essential insofar as the mill chemist is concerned.

Those present included: Albert C. Aiken, P. D. Applegate, Ralph Atkins, P. W. Bartholomew, C. D. Beebe, Harry C. Bradford, C. A. Braginton, Arthur F. Bolles, V. S. Burstein, Preston Carter, Ralph E. Carter, C. W. Cassell, Fred Chappell, R. J. Church, Art Coffin, A. W. Cole, C. T. Colgren, J. R. Dam, Frank B. Eilers, F. D. Elliott, D. R. Erickson, M. Flotow, M. F. Fogerty, Nat Frisch, James H. Fritz, Martin Galbraith, Chuch Gardner, A. C. Germanson, Nick G. Gian, K. L. Graf, Jack Hartlewood, P. S. Hewett, G. I. Ingling, Bill Kirkpatrick, Bill Kottman, L. R. Kretchman, Leo Lake, Ken Latimer, C. W. Lillie, E. P. Lovenheim, R. T. Mashburn, D. W. McArthur, Don Militzen, Lee H. Mimms, Harley E. Nelson, H. Nendorf, Howard Parker, Frank A. Root, Marshall Rutz, C. C. Schneider, A. L. Sherwood, Harold Sinclair, J. J. Snider, E. B. Taylor, Harold C. Taylor, Floyd Thomas, John Thompson, R. W. Van Kirk, H. O. Ware, M. T. Wingate, Jim Wise.

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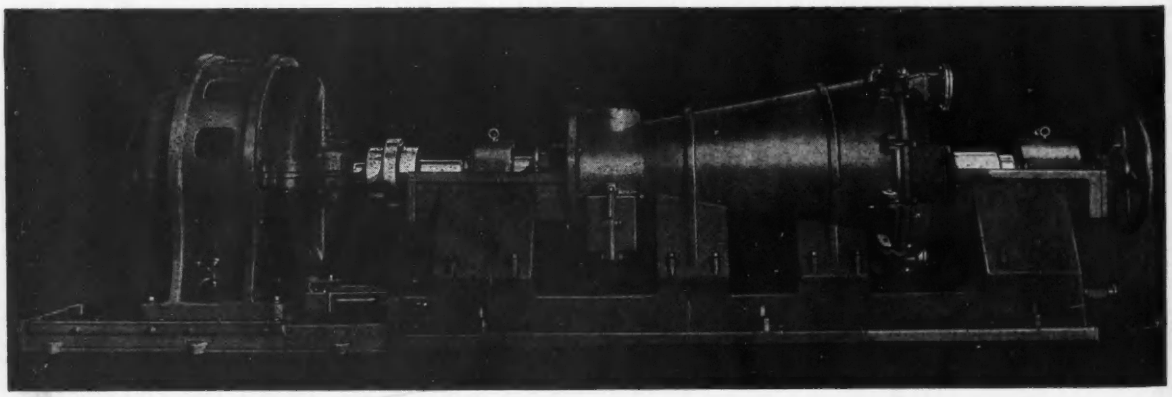

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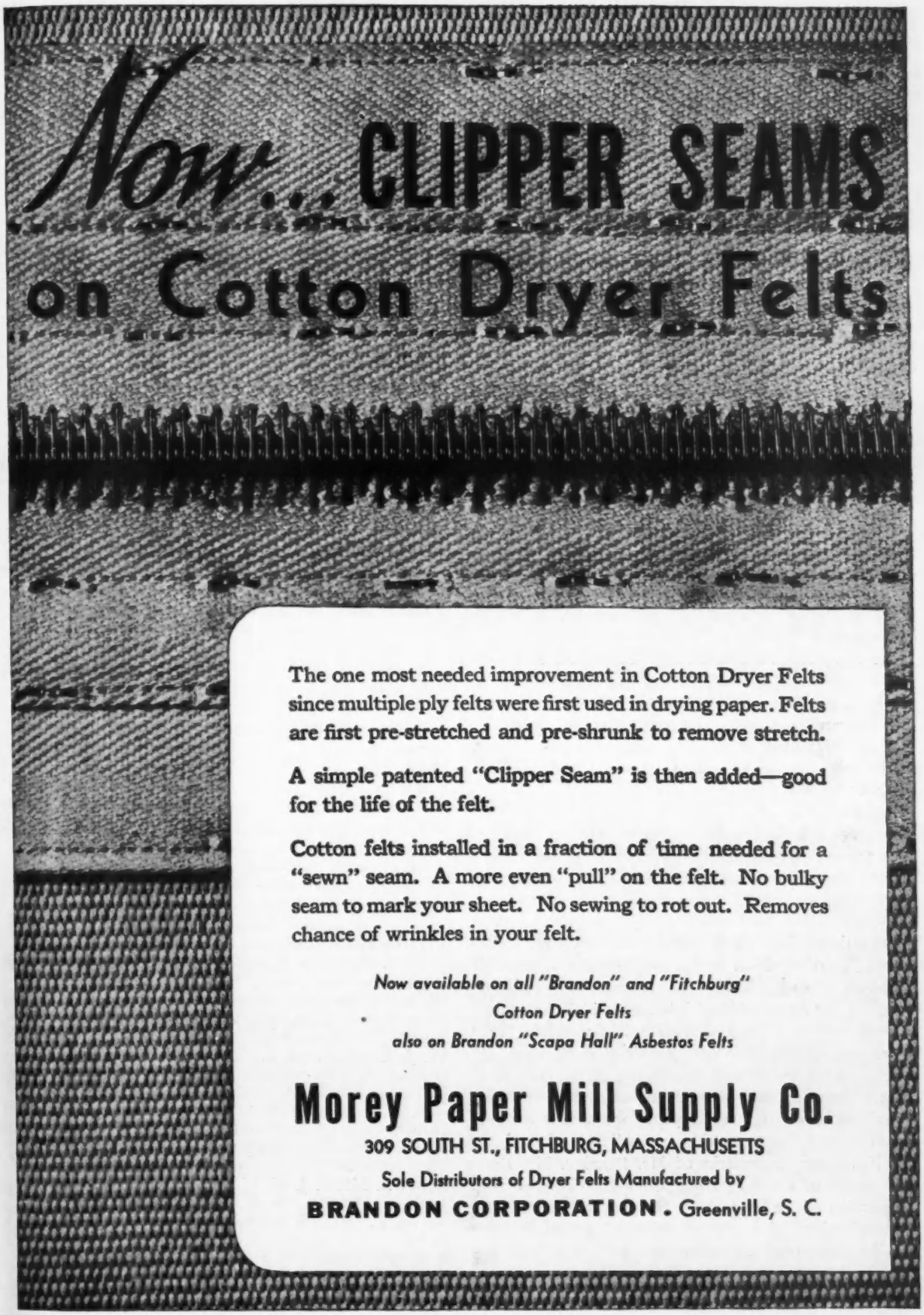

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Ohio TAPPI Discusses pH Control

The opening meeting of the Ohio Section of tne Technical Association of the Pulp and Paper Industry for the 1946-47 season was held at the Colony Restaurant at Middletown, Ohio, November 7th. The subject for the evening was the "Automatic Control of pH." The meeting was opened by Mr. Nelson Benzing of the Champion Paper and Fibre Company who discussed the three major parts of all automatic pH control, namely, measuring assembly, recording assembly, and controlling assembly. He stated that much trouble was encountered with the original pH equipment on the market but that since the appearance of the glass electrode in 1941 results have been very satisfactory. It was pointed out that since the glass electrode is a high resistance unit the equipment must be carefully shielded from outside interferences. Comments were made on the damaging effect of a very small quantity of moisture in certain parts of the unit.

In his discussion of installation Mr. Benzing pointed out that the three parts are entirely separate and can be installed in whatever location desired. However, he stated that the quicker the stock from the controlling assembly reached the measuring assembly the more accurate the control would be. Since the presence of a heavy fiber concentration will clog the equipment he considered it impractical to install the measuring assembly earlier than the pond; in most cases the installation should be made in the white water system. The controlling assembly is usually installed at the fan pump. The recording assembly may be located in any place desired. The electrodes must be kept clean and wet and should be installed in such a way that when the machine is shut down enough water is trapped around them so that they never become dry. If they do dry out they must be taken out and reconditioned by soaking in one-tenth normal HCL for several days before they are used again. The action of the "per cent of scale" correction device which operates the controling valve was described. If it is set too low the valve will operate to such a limited extent that the correction will not be made, while if it is set too high the equipment overshoots and oscillation is the result. The droop correction takes into consideration the time lag between the control and measuring assembly and prevents the equipment from making a second correction until sufficient time has elapsed for the first correction to reach the measuring assembly.

Following the remarks of Mr. Benzing, Mr. Don Goodman of the Sorg Paper Company discussed the operation of the equipment. He pointed out that although alum of a concentration of 2 pounds per gallon was used for automatic pH control, more accurate control would be obtained if lower concentrations were used. He stated that their experience showed the pH could be controlled to within 0.1 pH. In discussing the advantages of automatic pH control, Mr. Goodman stated that the equipment will usually pay for itself in about one year by the alum saved since careful control of pH permits the paper to be manufactured at the highest possible pH rather than operating at a lower pH for a margin of safety. He also pointed out that more uniform color was obtained with controlled pH and that there were many other intangible benefits mainly due to the higher pH at which the machine is operated. These include such things as less corrosion of paper machine equipment and production of more permanent paper as measured by accelerated aging tests. Mr. Goodman pointed out that any drastic change in weight or machine speed changes the time lag in the equipment and, therefore, requires a different setting for droop. Other sources of trouble which were mentioned were: air bubbles on the KCl electrode, asbestos pack on the KCl electrode too tight, and moisture in the assembly. It was also stated that new electrodes frequently cause hunting. It was thought that this was caused by moisture entering the assembly when the electrodes were changed. Adding a container of calcium chloride or coating with paraffin eliminated some of these moisture troubles. In the discussion of maintenance of the equipment it was pointed out that only a few minutes per day was required to clean the equipment including cleaning the slide wires. It was suggested that the equipment be calibrated at least once each day by checking the pH by some other means. It has been recommended by the manufacturer that the electrodes should be washed every day but experience has indicated that after washing there is always a period of hunting, apparently caused by a little moisture entering the electrode assembly. It was found that less trouble was encountered if the electrodes were not bothered for 3 or 4 weeks and were then replaced by another set. The original set is taken to the laboratory for reconditioning. After the presentations of Mr. Benzing and Mr. Goodman the meeting was open for general discussion and many questions were asked from the floor.

Those present included: C. E. Ahlm, Joe Atkinson, Berle B. Babler, G. A. Balko, M. L. Barker, Leonard B. Barnes, Wm. Biven, Nelson S. Benzing, S. W. Blanchard, W. Doyle Boggess, C. E. Brandon, E. M. Brennan, F. J. Brennan, R. D. Bruner, Booker P. Bunch, J. E. Burdsall, P. T. Cade, D. D. Cameron, W. J. Carroll, Paul E. Clark, J. L. Clouse, Joseph Combie, R. R. Crawford, Homer Ferrer, Joseph J. Fiori, C. Gebhart, Augustine C. Geoorn, Don Goodman, H. A. Harvey, T. Hieronymus, S. R. Holmes, Hobert Howard, Don Inhoff, John E. Jack, E. A. Johnson, H. C. Koch, Myron G. Kuhlman, R. D. McCarron, Karl C. Melenbacker, C. R. Merriman, Lewis B. Miller, J. H. Moyer, S. R. Olsen, Harvey J. Pedley, John L. Purdy, Henry Reeves, Jr., C. R. Roess, P. M. Schaffrath, Ray Sehrock, James L. Selby, R. H. G. Smith, Ray Smith, C. A. Sorg, C. N. Stupp, Herbert A. Smith, J. H. Tate, Art Thurn, W. E. Trennepohl, Leon Tyler, W. A. White, Jr., Charles J. Wright, D. M. Yost, F. L. Zellers.

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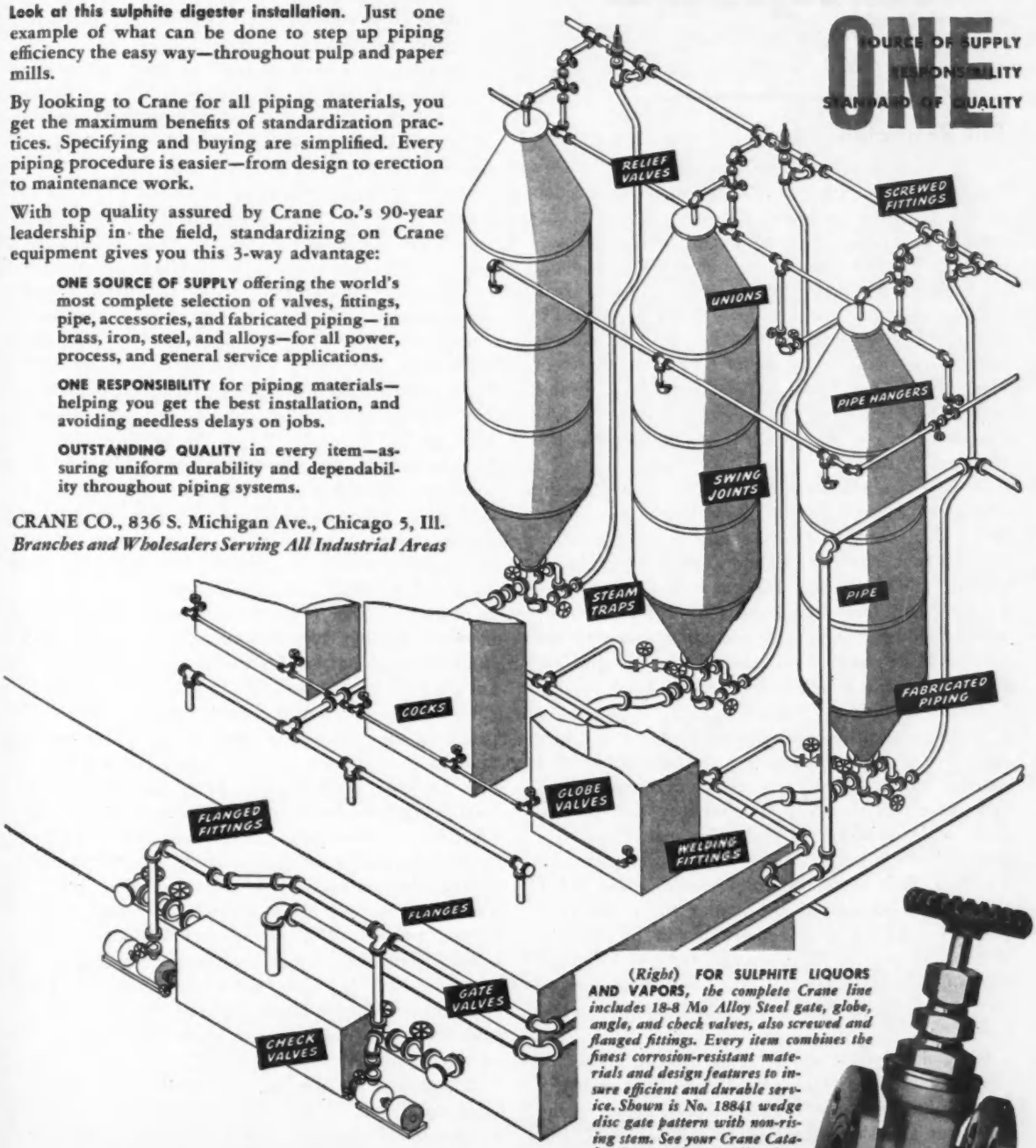

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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

Still Restricted

Paper board, say the men who know the business best, has a great future before it. In their assertion of this fact they go beyond the mere industrial future that may lie before them and before the production of their mills. In fact, they are talking about something quite specific, the immediate future when, after successively passing from controls by WPB and OPA they shall breathe the freer air that is without any taint of CPA or NHA and their present restrictive influence. A heartfelt suggestion of this was given a few days ago in the remarks of W. Irving Osborne, retiring president of the National Paperboard Association.

A year ago the board men were pleased at the release of controls by the War Production Board and looked forward to a coming year of production without interference and directive powers of that or other agencies. However, in the last days of 1945 and the early months of 1946, directives were issued by the CPA, the peace time successor and heir of WPB, against a few mills for the production of Gypsum Liner Board, ostensibly to aid the Veterans' Housing Program.

As the year progressed, the total tonnage of these directives became so great as to be burdensome and patently unfair to the few companies involved. A committee was therefore appointed by the CPA to come to Washington to study this matter and recommend action on the part of the Government for fulfilling their demands for gypsum liner. After thorough discussion of the matter the committee's position was that the industry would provide the amount of gypsum liner needed for the Veterans' Housing Program but directives for this purpose should only be used after CPA had further studied the matter.

CPA did spread the load by issuing directives against some fifty boxboard mills and approximately twenty-nine mills now remain as participants in the directives and share the load of this program. But rather than give the needed price relief, the NHA came up with another saddle on the taxpayers by developing a subsidy payment to the mills filling the directives.

The industry is thoroughly in favor of producing the needed gypsum board for the Veterans' housing but holds it is an inexcusable abuse of the governmental power to deprive regular users of paperboard of a substantial portion of their supply in order to run the gypsum board industry at 25 per cent higher capacity than they ever produced before without any direct controls on the resulting gypsum board. In addition, the general taxpayer is paying for the privilege of so substantially increasing the profits of the gypsum industry.

Reports in the newspapers throughout the country portray the increasing impatience of the public at the whole NHA program and continued divergence of this and other building materials to unessential construction not even remotely connected with the Veterans' Housing Program.

During the past year all paperboard has remained under tight control of the Office of Price Administration. There were minor upward adjustments made in the ceiling prices of all grades of boxboard and container boards during the year but in general these were not effective until long after cost increases had made them imperative. As far as paperboard ceilings are concerned, the historical slogan of the OPA can well be—"Too Little, Too Late." The result has been to distort seriously the normal industry production and merchandising pattern. It has accentuated the trend to integration on the part of mills and converters so as to leave many converters seriously short of paperboard supplies. It has caused the production of many grades of board to be substantially restricted, thereby forcing the consumer to purchase higher priced grades at a much greater increase in costs to him than would have been the case if adequate ceilings had been established on the standard grades.

Operations in the paperboard industry during the past year, the first postwar year, have been conducted under a mass of difficulties and uncertainties, President Osborne pointed out. These difficulties have been engendered by inept governmental policies culminating in labor unrest and strikes in major industries, including the coal industry, the railroad industry, the automotive industry, the electrical industry and many other industries serving us in important matters. While some similar stoppages did occur in our own industry, we have been singularly fortunate that they have not been widespread. The paperboard manufacturing industry has also been under a severe handicap due to the fact that many of our important raw materials, wastepaper, pulpwood, pulp, chemicals, as well as experienced and hard working labor have been in insufficient supply.

Throughout the past year, paperboard production has failed to meet the demand of our customers.

The current situation in many ways is pleasant to

Calendar of Coming Events

February 23-27, 1947—The American Paper and Pulp Association, Annual Meeting, The Waldorf-Astoria, New York City.

contemplate. On January 1st of this year, unfilled orders totalled 526,900 tons and as of November 2d, this order backlog increased to 601,800 tons. This portrays a picture of continued steady demands upon us as long as general business activity in this country remains at or near current levels.

Possibly the most pressing problem to be settled on a national basis is that of labor. The current labor unrest with its interruptions, delays, and resulting shortages will be felt in our industry. Labor relations of the paperboard industry have always been good and I am sure they will continue so. However, the national difficulties cannot fail to influence our own operations and the danger of spiraling labor raises, later to be matched by increased prices of our products, is one that can engender the same type of unfortunate collapse that occurred in 1920.

The second problem is closely related to the first and that is the pricing policies. If prices of paperboard are unduly raised, either by the individual actions of the members of the industry or forced to this point by increased labor and other costs, a serious contraction in the market may be expected. The steady expansion in the consumption of paperboard has been based on a utility material on a very economical cost basis. Plastics, light metals and similar new materials are only waiting to take over.

The industry in the late 1920s went through a considerable period of profitless prosperity when production was high but profits were fleeting. It expects again soon to enter a similar period unless the individual members of the industry are aware of such dangers and plot their policies accordingly.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
October 5	107.2	October 6	94.1
October 12	105.9	October 13	96.2
October 19	105.1	October 20	96.5
October 26	106.8	October 27	95.8
November 2	107.2	November 3	97.5
November 9	*106.8*	November 10	97.0

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	100.7	104.6	94.0	104.7	101.3	*106.4*			

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	82.0	86.1	96.6	91.9	88.4	88.5	89.3	*101.3*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
October 5	100	October 6	95
October 12	99	October 13	97
October 19	98	October 20	96
October 26	101	October 27	98
November 2	100	November 3	97
November 9	*102*	November 10	97

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	94	97	89	99	96	*100*			

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

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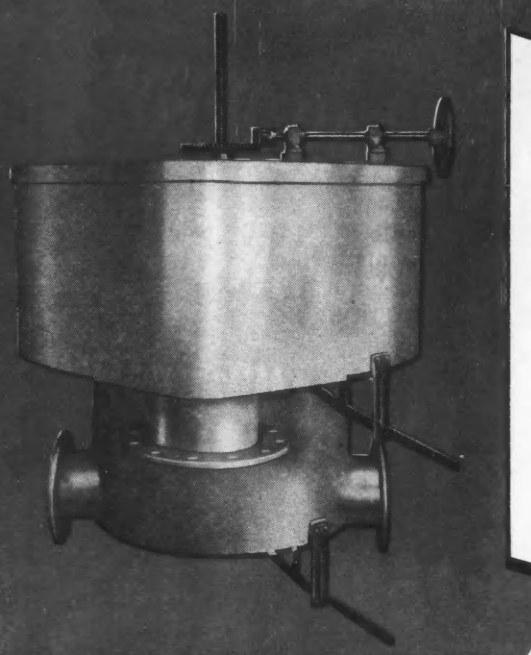

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Lignin as a Fertilizer Material*

By Robert S. Aries[1]

Abstract

Recent investigation on the use of lignin in agriculture conducted under the auspices of the Northeastern Wood Utilization Council indicate promising outlets for this wood byproduct. Calcium ligno sulphonate from sulphite pulping increased the yield of shelled beans by 60% when applied at the rate of 10 tons per acre. The use of lignin from dilute acid (Scholler) hydrolysis increased the starch content of potatoes by 85%. A partially hydrolyzed wood (containing cellulosic materials) as well as sawdust gave less satisfactory results. Lignins with surface active properties obtained by either acid or alkaline pulping, have increased the infiltration rates of water into the soil up to 100 fold, thereby indicating promise in eliminating erosion and increasing the rain absorbing capacity of the soil.

Applications of sulphite lignin to soil in pots increased the organic matter content, pH value, soluble phosphorus, and calcium contents of the soil. It could be used as a substitute for liming materials and part of its cost written off because of its calcium or magnesium content. The prevention of leaching is an added advantage. Work on this project is continuing under a long term program.

The economic disposal of byproduct lignin from wood-chemical operations has been investigated by a large number of workers for over a century. Yet even today it is still classified as (*1*) "the largest waste in industry" with sulphite mills dumping about 1,750,000 tons of it every year and the annual production of forest and agricultural wastes being capable of furnishing a formidable additional tonnage. The kraft and soda mills which now burn their lignin could make available another million tons under favorable economic conditions. The reasoning on the potential outlets of lignin has unfortunately been directed towards markets which could hardly absorb even a fraction of the lignin available. Thus one average size pulp mill can produce enough vanillin to satisfy the entire present demand for the latter in the United States. Despite its tremendous recent expansion, the output of plastics will be about 500,000 tons in 1946. Contrasted to it, the consumption of fertilizers in 1946 will be over 12,000,000 tons and the demand is claimed to exceed the supply.

In view of the large potential demand for a lignin fertilizer material and the fact that there are 26 sulphite mills in New England and New York (or 36.2% of all similar mills) as well as 7,000,000 tons of unsaleable wood waste in New England alone, the Northeastern Wood Utilization Council undertook to investigate the possible use of lignin and other forms of wood waste for fertilizer. In accordance with the policies of the Council, the project was assigned to a number of cooperating agencies under its coordination and advice. A report on the preliminary work on this subject was given earlier (*4*) and experiments are continuing in 1946 at an accelerated rate. The types of lignin materials investigated were: (1) sawdust, which will be treated only indirectly in the present paper; (2) hydrolyzed lignin from the modified Scholler process, which is expected to be available on this continent in the future; (3) calcium (or a mixture of calcium and other salts) lignin sulphonate, as derived from sulphite pulping and supplied through the courtesy of the Marathon Corp., and the Robeson Process Co. (*4*) a partially hydrolyzed woody material, supplied by the Marathon Corp.; and (*5*) sulphate lignin and "sodium lignate" generously supplied through the courtesy of the West Virginia Pulp & Paper Co. Work on this lignin was started somewhat after the initial tests with the other types.

Reasons for Effects on Lignin on Soil

The pH of agneous extracts of isolated lignins (Scholler lignin, peat) is between 4.2 and 3.5. This is quite low considering that the sap taken from living trees may have a pH between 6.0 and 5.0. (*5*) These results were obtained by many sap determinations and it seems difficult to believe that such variations of the pH of sap and lignin could be present in a living tree. It seems more reasonable to believe that the pH of a sap is some indication as to the pH of the surrounding plant tissues (lignocellulose). If the sap, however, is exposed to air its pH becomes lower and approaches that of isolated lignins. This may explain the lower pH of isolated lignin by oxidation, which takes place rapidly during exposure of lignin to air, especially in the presence of moisture.

If lignin condenses to larger units during its isolation process it cannot be considered any longer a simple organic compound, but it enters the field of high molecular substances which are generally also considered to be colloids. In order to prove the colloidal qualities of isolated lignin it should possess, like any other normal colloid, absorption properties. It was found experimentally (*5*) that it is absolutely essential that a certain amount of moisture must be present in the lignin if it is expected to exhibit any absorp-

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Director, Northeastern Wood Utilization Council, New Haven, Conn., and Research Associate, Polytechnic Institute of Brooklyn, N. Y.

tion qualities. In other words, moisture-free lignin does not possess any absorption possibility. This would indicate a true colloidal phenomenon since many colloids lose their absorption action after being thoroughly dried. Experiments dealing with the absorption of lignin were carried out with HCL, KOH, and NH_3. Acids are less absorbed than alkalis but in any case the matter absorbed by the lignin was held tied, indicating the presence of some form of chemical linkage. In order to prove the nature of the isolated lignin, absorption experiments were carried out with dyestuffs. Acid dyes possess a negative charge, while basic dyes carry a positive charge. By this means the basic or acid character of the sorbens may be determined. In the case of isolated lignin it was found that it absorbs basic dyes, therefore lignin carries a negative charge and possesses acid character.

These findings are of special importance if isolated lignin should act as a carrier or absorbent for substances to be applied as a fertilizer.

If any lignin is exposed to air, oxidation takes place. It could be demonstrated that, under mild chemical oxidation, simple degradation products are always formed such as formic acid, acetic acid, oxalic acid, malonic acid, succinic acid, and others. More drastic oxidation methods produce aromatic acids also in small amounts. The acids formed during oxidation may exist free or combined with minerals in time when the lignin is placed into soil. It must, however, be kept in mind that lignin in soil is a most resistant material against the action of fungi, bacteria, or invertebrate animals, living in soil, peat bogs, etc. Lignin in fresh plant tissues may be partly decomposed by higher fungi but once the lignin becomes isolated it becomes resistant to attack even by these organisms. The chemical nature of lignin in the plant varies with its growth (increase of methoxyl content). Lignin in younger plants seems to be more easily attacked by microorganisms than in older plants. Because of its high resistance to attack of microorganisms, lignin becomes more and more concentrated in soil, while its accessories cellulose, pectin, etc., are quickly removed. This process is the so-called humus formation, the most important source of humus in nature. With the gradual transformation of lignin in soil to humus, its absorption degree increases, it combines with proteins and shows greater solubility in alkali. These alkali soluble fractions of former lignin, the so-called humic acids, differ from original lignin by a lower methoxyl content, darker color and presence of nitrogen.

While a great many investigators are still searching for the final constitution of lignin, especially isolated lignin, there is still great opportunity to use the already accumulated knowledge about these substances to study the application in a more suitable form in the fertilizer field.

Humus formation has been known for a long time and is already in use. The colloidal aspects of isolated lignins deserve more attention and studies of such properties as absorption, acidity, moisture content may well help in developing a humus forming material which at the same time carries special agents acting as fertilizers.

Effect of Soil Bacteria

The total number of microorganisms present in a soil may vary enormously (7). Among factors inducing variation in such numbers are: (a) available organic substances, (b) favorable oxygen relations, (c) available water, (d) reaction, pH, (e) favorable temperatures. Roughly then, total micropopulation in certain acid soils is found to range around a million or so to the gram of soil, whereas, in loam with fresh organic matter added, the totals run into the billions to the gram. Any total between these figures can be produced by adjusting the culture relations in the correct manner. The inoculating capacity of any of these great populations appears to be adequate to insure rotting agents for any purpose. One does not wonder that the soil "swallows" and destroys the waste, the worthless and the unwanted, almost whatever it may be.

However, the striking factor in recent researches has been the demonstration that most of these decomposition processes, so far as bacteria are concerned are caused by the organisms already present on or in the material as it enters the soil. The complex of bacteria involved in the rotting process proved to be the same in quite different soils and quite varied types of organic matter. Comparison of totals in the microflora of rotting material and that of adjacent soil showed that the soil microflora in the narrow sense only affected through a very short fraction of an inch from a very active decomposition in which the number of bacteria to the gram jump to fabulous figures. In other words, the soil forms a porous pack about an organic mass, maintaining favorable temperature and moisture conditions while admitting air enough to support the process. The factor of uniformity seems to be the excess of carbon dioxide produced, which by slow exchange with the atmosphere above the surface supplies the necessary oxygen which was so far reduced from atmospheric density as to favor a selected microflora.

Applied to woody materials, bacteria seem to play a minor role as a rule. Wood-rotting fungi are found in many genera and numerous species. They penetrate deeply into woody tissue above ground. Many of them are already deeply imbedded in the fiber when the woody material is deposited. Partial or complete burial in soil undoubtedly destroys a considerable percentage of these species, but those that remain carry on the process almost if not entirely unaffected by bacterial invasion from the surrounding soil, at least in the earlier stages of decomposition.

Some people have been accustomed to think of the forest waste in terms of "NPK" value. Wood products are low in N but high in C, H and O., i.e., high in calory values. Is that the primary value of these products? Or, may they be considered another way? Some have watched the developments of many years in this field. For an illustration, the authors asked for advice in growing highly bred blueberry plants. The breeder replied with comments on slope, on shade, on fertilizer—then added that the area should be mulched with about 6 inches of sawdust. Again this recognizes that a blanket of wood waste may produce a favoring physical condition in growing a crop. This is physical use of wood waste in a crude form.

Plant food value then is not all. Humus is essential to water holding capacity. The processes of decay that produce these materials to elementary conditions as plant food support a great population of worms, insects, fungi and bacteria, as well as (frequently at least) considerable cover of annual plants. The whole aggregate of plant remains conserves water, supplies food for a teeming population which eats part of it, mixes the mass with earth, and builds a favorable feeding area for the trees themselves.

To many, humus—that means the amorphic material, one might call it the terminal product of decom-

position, high in "lignins," high in microbial nitrogen, with factors which derive directly from its raw materials—humus is more important for its physical effect on the soil as a place for plant roots to grow than as a source of plant food.

The various stages of decomposition cover: (1) a quick decay of water soluble carbohydrates and green plant protein, (2) a slow breakdown of the more stable celluloses, hemicelluloses and their related stuffs —with the evolution of great volumes of CO_2 for the green plants above from both (1) and (2), (3) the blending of the residue, greatly reduced in volume, with the residues of the myriads of microbes that come and go during the process, to form humus.

Investigations on the Use of Lignin

One of the projects was set up to determine the agricultural value of two wood waste products by the Northeastern Wood Utilization Council at Seabrook Farms, Bridgeton, N. J., under the supervision of Dr. Benjamin Wolf, Soil Chemist, and Dr. Frank App, Director of Research. Calcium ligno sulphonate and a partially hydrolyzed sawdust commonly used as a plastics filler and extender, were applied to a soil in pots at the rate of 2.5, 5 and 10 tons per acre. These products were mixed with the upper 6 inches and small seeded lima beans were planted.

After the first rain, soil in pots containing lignin had an extremely hard crust. To a certain extent, this crust interfered with the germination of the beans. After several more rains (about 4 weeks after the treatment) this initial crust disappeared and the soil was left in very fine tilth. Water penetrated much more quickly in soil receiving lignin than in controls or those treated with hydrolyzed sawdust. In fact, no water remained on surface of lignin-treated soil for any length of time despite a rather continuous rainy spell during the growing season. Marked favorable differences were still noticeable 9 months after adding the lignin.

Plants in soil receiving hyrolyzed sawdust showed considerable indications of nitrogen starvation during early periods. No improvement in soil structure with the latter treatments were noted with less than 10 tons per acre. Even with this large amount, improvement in structure was nowhere near as good as with the 2.5 tons of lignin per acre.

Results of dry weight of shelled bean seeds for various treatments are given in Table I.

TABLE I.—INFLUENCE OF WOOD WASTE PRODUCTS UPON YIELDS OF LIMA BEANS

Treatment	Dry Weight of Shelled Beans *
Check	9.8
2.5 tons sulphite lignin per acre	14.4
5 tons sulphite lignin per acre	15.9
10 tons sulphite lignin per acre	12.7
2.5 tons partially hydrolyzed sawdust per acre	11.0
5 tons partially hydrolyzed sawdust per acre	9.9
10 tons partially hydrolyzed sawdust per acre	8.2

* Grams per pot—average of four pots.

Lignin used in these experiments being a calcium lignin sulphonate with a pH of approximately 10.5, its use in large quantities in the soil markedly raised the pH of the soil and so it could be used as a liming material. However, the relatively poorer yields of the 10 ton application may be due to the fact that pH was raised to above 8 in the first 4 weeks after applying lignin.

From Table I, it is clear that calcium ligno sulphonate has an unusually beneficial affect on the yield of lima beans, an application of 2.5 tons per acre, increasing the yield almost 50% while the application of the equivalent of 5 tons of sulphite lignin per acre increases the yield over 60%. It is interesting to note the larger amounts of lignin seem to have negative results.

TABLE II.—THE INFILTRATION OF WATER * AS AFFECTED BY ADDITIONS ** OF LIGNIN TO SOIL IN POTS

Sulphite Lignin Added Tons per Acre	Time Necessary for Water to Pass Into Soil, minutes	Water Passing Through Soil, oz.
0	300	79
2.5	45	76
5	7	77
10	3	79

* One gallon of water applied instantly and simultaneously to all pots. The 1 gallon of water was approximately equivalent to 2 inches of rain.
** Test was made Nov. 13, 1945. Lignin was applied June 15, 1945.

The addition of the equivalent of 2.5 tons of a partially hydrolyzed sawdust per acre increased somewhat the yield of shelled beans, while larger amounts had practically no effect, while the yield actually is decreased when the equivalent of 10 tons per acre are added. This is probably because of an unbalanced carbon-nitrogen relationship, for Soderbaum and Barthel (*6*) found that 2% of sawdust in a soil decreased crop growth and cotton cellulose gave similar results. They concluded that it was because of a lack of available nitrogen, because, when sufficient nitrogen was used with these materials, their inhibitory action ceased.

In the case of experiments with a partially hyrolyzed sawdust, the large amount of carbon brings about a temporary reduction in the amount of nitrogen available for crop growth, because of the activity of the cellulose which serves as food for the bacteria. Such food greatly increases the number and activity of the latter, which require nitrogen for their own bodies. The bacteria use the readily available forms particularly nitrates and thus compete with the higher plants, causing nitrogen starvation with resultant poor growth. It is expected, however, that after the bacterial activities subside, the protein nitrogen in the bacterial cells will be converted to nitrates. Thus, while the immediate result of the addition of a partially hydrolyzed sawdust to the soil may not be altogether advantageous, it is expected that the ultimate effect will be beneficial. For this reason, the experiments are continuing.

Wetting Activity and Rate of Infiltration

The surface active properties of some byproduct lignins are well known and used as dispersing agents, cement additive, etc. These properties were investigated.

One of most striking effects of sulphite lignin in the Seabrook Farms experiments has been its effect upon the rate of infiltration of water into the soil. In a year of abnormally large amounts of rain, soil treated with lignin seldom had any water standing on the surface. In contrast, controls had water remaining on the surface for days after the rain had stopped.

To obtain a more quantitative measurement of this effect a definite quantity of water was added to each pot. The time required for this water to infiltrate into the soil was noted. Likewise measurements of the amount of water filtering through was also made. These results are given in Table II.

These results give an indication of the striking effect of lignin additions upon water infiltration. The time necessary for water to pass into the soil was decreased from 300 minutes to 3 minutes in the case of the application of 10 tons per acre. Even an application of 2.5 tons of lignin speeds up infiltration to 45 minutes per pot. Soil treated with lignin and having these properties would be capable of absorbing any light rain. In addition, erosion should become

TABLE III.—HARVEST DATA ON LIGNIN-TREATED POTATOES AT UNIVERSITY OF NEW HAMPSHIRE

	Plants 98 Days Old—Weight of Tubers in Grams		
	Lignin Alone	Lignin + S	Control
	494.4	429.0	425.0
	431.0	386.5	325.4
	522.8	427.5	271.5
	409.3	405.0	234.0
	447.7	482.0	340.0
	504.2	423.7	213.2 *
	349.2	326.4	120.0 *
Totals	3,158.6	2,880.1	2,233.4
Average	451.2	411.4	319.2

* Figures omitted from calculation because of weak plants.

less of a problem because water would move readily into the soil rather than over it. The importance of this phenomenon should not be overlooked, in view of the ravages of erosion in large areas of this country. Sulphate lignin is now being tested along the same lines and preliminary results are equally encouraging.

Scholler Lignin in Potato Fertilizer

The effect of Scholler lignin on the growth of tubers is also being investigated by the Council with the cooperation of the University of New Hampshire under the direction of S. Dunn from the Agricultural Experiment Station and J. Seiberlich from the Engineering Experiment Station (*3*).

This project was begun to test the effects of Scholler lignin with and without sulphur on growth of potato plants when added to the soil. Originally interest was in the effect on starch quality of the tubers for industrial uses. Now it appears that other effects may be of equal or greater interest, in view of research going on at present.

The plants were grown from cut seed in galvanized 14-quart pails. The interiors of the pails were coated with beeswax to prevent corrosion. The pails were filled with soil, a Newmarket fine sandy loam, with thin layers of lignin between layers of soil. About a pint of lignin (300 grams) per pail has been the basis of preliminary experiments. Assuming that there are about 15,000 potato plants ordinarily grown per acre, this would mean an application of about 5 tons per acre. Commercial fertilizer was added to all pails. This was placed in a ring around the seedpiece at a depth of 2.5 inches, at a rate of 28 grams per pail, or 1,000 pounds per acre, of 8-16-16 fertilizer. The plants were staked later as growth progressed to keep the vines upright. Seven plants were grown per treatment.

Although it might have been desirable to keep the moisture content of the soil at a constant value, no attempt was made to do so, because of lack of labor. Water was merely supplied by hose as needed.

Another series with half this amount of lignin and comparison with peat treatment is being grown.

Results

The work at the University of New Hampshire has progressed far enough to state that the lignin treatment has possibilities. A marked stimulus to growth in early stages was found, but later the differences were not so great. This stimulus did not appear in the growth of the second series with less amounts of lignin. Lignin-treated plants, in general, have deeper green color and more abundant foliage. The number of plants tested so far is small and further confirmation of these results must await repetition of the experiments. However, yield data on tubers harvested from the first series showed significant differences, with greatest weight of tubers from lignin alone, almost as much from lignin plus sulphur, and least of all from plants with fertilizer only. The figures are given in Table III.

It is also of interest to compare the yield figures with some of the analytical data for tuber samples given in Table IV. Here it will be noted that the starch content of the tubers from lignin-treated plants is markedly greater than the others, while moisture content is considerably less.

TABLE IV.—ANALYSIS * OF POTATO TUBERS FROM LIGNIN EXPERIMENT

	Lignin	Lignin + S	Control
Moisture, %	41.14	55.004	58.7
Ash, %	1.06	1.89	1.71
Starch, %	19.68	11.77	10.24

* Figures for fiber and other constituents omitted.

Influence of Sulphite Lignin Upon Certain Chemical Characteristics of a Soil

In view of the increased yield of beans upon the application of calcium lignin sulphonate at Seabrook Farms, as well as the improvement in soil structure, further tests on these soils were undertaken under the supervision of Dr. Benjamin Wolf.

The results in Table V indicate that this material has also had a profound effect on certain chemical aspects of the soil.

It is heartening that the organic matter test showed appreciable increases five months after application to the soil. The lignin is quite resistant and from these results, it would be expected that beneficial effects would last for several years.

The fairly large content of calcium in this lignin was responsible for the marked changes in pH and calcium. In fact, this particular product could be used as a substitute for liming material and part of its cost written off because of the calcium content. The huge increase in calcium in the soil and maintenance despite heavy leaching is also an added advantage. It may be well to point out here, that the highest application of lignin was associated with a reduction in yield of beans as compared to the lighter applications. This may be because of the very high pH which resulted.

The large amounts of phosphorus which were associated with lignin applications is evidently due to at least two factors. The increase in pH value is usually associated with an increase in soluble phosphorus. Also, the large amounts of organic matter present may have prevented the precipitation of such soluble phosphates.

There was a slow but steady decline in the amounts of available potassium. This may be because of the release of potassium from the exchange capacity by presence of large amounts of calcium in the lignin applied.

Altogether the changes are very favorable and lignin appears to be a very promising material at least, for certain soils similar to the ones in South Jersey.

Conclusions

The above data constitute a progress report on the work to date conducted by the Northeastern Wood Utilization Council. Further work is now done at

TABLE V.—THE INFLUENCE OF LIGNIN APPLICATIONS * UPON CERTAIN CHEMICAL CHARACTERISTICS OF A SOIL

Lignin			Soil Tests **			
Tons per Acre	O.M.	pH Value	P	K	Ca.	Mg.
0	0.85	6.37	19	80	710	70
2.5	1.10	6.65	25	75	900	70
5	1.50	7.25	33	70	1260	61
10	1.75	8.04	56	65	1700	61

* Applied June 15, 1945.
** Samples collected November 10, 1945. Results of elements are reported as soluble in Morgan's extracting solution and in pounds per acre.

about ten affiliated members or agencies. Agriculture is a consumer of low cost bulk materials. Lignin has the possibility one of the ingredients it can use. Some crops appear to be able to support it. For example, in the case of spinach selling at about $70 per ton, an even slight increase in the yield would mean that a reasonable sum can be paid for the lignin. Waste lignins contain fertilizer elements such as calcium, magnesium, organic matter, sulphur, and potash; they may contain certain trace elements that are needed for plant growth and would add to their value as a fertilizer material. Further research is necessary in this respect, both in adequate analyses and in adding certain minerals to lignin.

It was brought out that lignin is closely related to humus and its slow decomposition would tend to maintain and build up the humus layer. Research should be undertaken on the exact relationships between lignin and humus.

The ammonium bisulphite process which has been in operation in Sweden for over 10 years and is being introduced to this country may yield a lignin waste which should attract more interest for use as a fertilizer(*2*). The Northeastern Wood Utilization Council will test it, as soon as it becomes available. Work is now being done at the Polytechnic Institute of Brooklyn on the treatment of lignin with nitrates, phosphates, etc. in order to produce a complete fertilizer.

The problem of lignin utilization is a challenge to America. "Progress by injunction" can hardly wait in this case. Its use in fertilizers is certainly the most promising outlet in so far as tonnage is concerned. The fertilizer industry consumed over 12 million tons of fertilizer ingredients in 1945 and the tonnage is constantly increasing. With these specific examples of research, the general character of the work becomes apparent. There will have to be industrial evaluation of existing processes, semicommercial and pilot plant development of promising possibilities, appraisal of information on small scale experiments in application to large scale developments and also fundamental laboratory research. It is on this basis that the problems can be attacked to secure lignin at a cost that would make its use practical as well as discover the effects of lignin application on plant growth. The possibilities are there. It is up to research to turn lignin from a liability and nuisance into an economic asset.

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5. Seiberlich, J., "Wood Products for Fertilizer," N. E. Wood Utilization Council (1945), p. 49.
7. Thom, C., "Wood Products for Fertilizer," N. E. Wood Utilization Council (1945), p. 38.

TAPPI Notes

Thomas J. Desmond, technical representative for E. I. du Pont de Nemours, has been transferred from Wilmington, Del., to 1207 Foshay Tower, Minneapolis, Minn.

George W. Brumley is now assistant general manager in charge of operations for the St. Marys Kraft Corporation, St. Marys, Ga.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Hector Audino, Vice-President in charge of Engineering, Rossotti Lithographing Co., Inc., North Bergen, New Jersey, a 1925 graduate of Cooper Union Institute of Technology. He was formerly employed by R. Hoe & Co., New York City; Edison Storage Battery Co., Inc., West Orange, New Jersey; Mizzy, Inc., New York City; and he was also in business for himself.

Charles J. Zusi, Vice-President and Technical Director, Container Testing Laboratories, Chicago, Illinois, a 1921 graduate of Cooper Union. Formerly employed by Atlas Plywood Corp., Boston, Massachusetts, and Hinde & Daugh Paper Co., Toronto, Canada.

Walter W. Cooper, Paper Section, Technical Service and Development Division, The Dow Chemical Co., Midland, Michigan, a 1939 graduate of the New York State College of Forestry. He was formerly with the American Writing Paper Company, Holyoke, Massachusetts, and served four years with the Army Air Forces.

Nelson E. McNiff, Chief Inspector, The Canadian Johns-Manville Co., Asbestos, P. Q., Canada, a 1932 graduate of McGill University. He was formerly employed by the Howard Smith Paper Mills Ltd., Montreal, P. Q., and served four years with the Royal Canadian Air Force.

Lawrence L. Wiseman, Chemist, American Institute of Baking, Chicago, Illinois, a 1939 graduate of the University of Missouri. He was formerly employed by the University of Missouri, Columbia, Missouri; the Northern Regional Research Laboratory of the U. S. Department of Agriculture, Peoria, Illinois; and the Chicago Quartermaster Depot, Chicago, Illinois.

Ernest K. Jamison, Engineer, The Huffman-Wolfe Co., 308 Standard Bldg., Atlanta, Georgia, a 1936 graduate of Ohio State University. He was formerly employed by G. W. Vandervort Co., Portsmouth, Ohio.

John C. Scarth, Junior Chemist, Canada Paper Co., Windsor Mills, P. Q., Canada, a 1945 graduate of Bishops University.

Lange's Handbook of Chemistry

The Sixth Edition of the Handbook of Chemistry by Norbert A. Lange of Western Reserve University has just been released by the Handbook Publishers, Inc. (1767 pp. with 270 pp. appendix of mathematical tables and formulas 5½x7¾). This volume, which is probably familiar to most technical men, is the largest hand book devoted to chemistry. It contains an unusually complete index of 3600 entries and is bound in strong flexible fabricoid. Its contents cover organic and inorganic compounds, chemical analysis directions, physical and industrial chemical operations. It is the kind of a book that one reaches for when he is looking for almost any data relating to chemistry.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y., at $7.00 per copy.

Conductometric Methodof Vapor Saturation Measurement as Applied to Automatic Gas-off Control of a Kraft Digester.—A Progress Report*

By Robert D. Cowherd[1]

Abstract

The feasibility of using a conductance measurement for the determination of water-vapor, partial pressures is discussed.

The dual action of the conductance measurement in not only analyzing the gas-off stream but in detecting a change in phase between gas and liquor is used for process chemical economy.

Two methods of applying the above to automatic control of the variable are presented. One in which a latitude of digester stability is available and the other in which digester stability is not available.

The statement that "the paper sheet is made in the digester and not on the machine" is often heard in a pulp mill. The validity of this quotation may readily be questioned by the machine operators. That digester operation is important to overall mill efficiency cannot be disputed.

In like manner, "a sulphate digester control is as efficient as its gas-off controller is efficient." Auxiliary instrumentation is important. However, this type of control is well-developed technically and the applications are common, industrial practice.

The function of a gas-off controller is to regulate the removal of gas and vapor from a digester at such a rate, that the partial pressure of water vapor in the relief is maintained at some constant value in spite of changes in the rate of the chemical reaction.

If such a relationship exists, the thermal potential for the reaction will increase uniformly with pressure.

The primary measuring element for a controller of this type must be one that is fundamentally responsive to a change in partial pressure with respect to water vapor.

The use of a thermal system whose bulb is first evacuated and then partially filled with water, coupled with a pressure measurement, is common practice for the determination of water-vapor, partial pressure. If the vapor surrounding such a thermal system is saturated, the thermal potential is such that the vapor pressure in the bulb will be equal to that on the outside of it. The pens of the pressure and thermal systems will therefore be coincident.

If the vapor surrounding a water-filled, thermal system is not saturated, the pressure inside the system will be less in an amount equal to the departure from the saturation value. The pens of the pressure and temperature elements will not be coincident, and their difference will be an index of the amount of material present other than water vapor. If the temperature, as indicated by the water-filled, thermal system, is subtracted from the temperature equivalent of the pressure surrounding the thermal system, the resulting difference is also an index of saturation.

The primary measuring-element should not only reflect changes in water vapor, partial pressure but it should also be sensitive to liquor pull-over.

The lack of such a differentiation is responsible for the loss of much of the digester, chemical potential. White liquor cannot digest wood in any other portion of the process. It is therefore necessary to retain it in the digester, instead of the recovery system, if efficient wood conversion to pulp is to be realized.

Detecting Unit

The original work on this project centered around a device for detecting liquor pull-over into the gas-off line. The instrument was installed at the St. Joe Paper Company in Port St. Joe, Florida, on the No. 4 digester. The circuit for the detection function is based on the distinct difference between the electrical conductivity of the vapor phase and that of the liquid. The vapor has a high electrical resistance while that of the liquid is comparatively low. The presence of one or the other, therefore, may be determined by inserting the proper electrode in the gas-off line.

The phase-detector circuit is shown in Fig. 1. An alternating, reduced voltage is imposed across a dry-type rectifier. In this series circuit there is wired an electrode and pipeline ground. The rectified a.c. is fed to a voltage divider and thence to the terminals of a d.c. millivoltmeter containing low-high, control contacts.

Should liquor appear in the gas-off line, the circuit is completed between the electrode and the piping. The subsequent a.c. current flow is rectified, and the pointer of the millivoltmeter goes to the top of the scale. The pointer movement opens the low and closes the high contact.

Auxiliary, air pilot-valves close the gas-off line, and at the same instant, high pressure steam is admitted to the digester for a timed interval to blow down the pull-over. The steam is admitted at a point upstream from the electrode as shown in Fig. 2, and in blowing back the foam, the electrode is purged of any liquor or pulp. Because of the high, electrical resistance of the steam, the pointer of the phase detector again drops to the lower portion of the scale, opening the high and closing the low contact. At the end of the timing interval, the valves are

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Application Eng., The Bristol Co., Waterbury, Conn. At present employed: Eng. Div., Commercial Solvents Corp., Terre Haute, Ind.

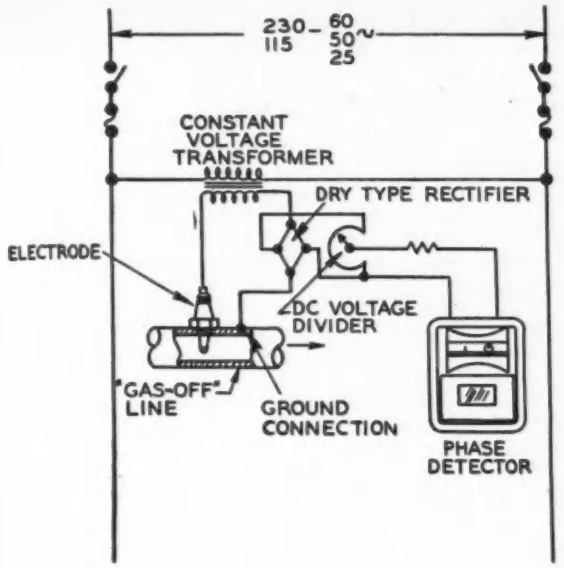


FIG. 1

reversed to their original position. If high-resistance gas-off flows in the piping, no further action is taken by the phase detector. If the steam blow-back was insufficient to break the pullover, the entire above sequence is reinstituted and repeated again, if necessary, until gas flow is the persistent phase.

One of the requirements for a successful, gas-off, control—sensitive element has been satisfied. The phase detector maintains the chemical charge of the digester, not in the recovery system, but at a point where it will be able to realize its function.

It was noted during the experimental work on the liquor gas phase detector, that if the manual gas-off valve were set such that the vapor conductance was in the center of the range, and continuously adjusted to keep it there, the following digester operation resulted:

(a) liquor pull-over was minimum, and (b) temperature and pressure rose in a proper relationship with respect to vapor saturation.

The electrode, therefore, not only differentiates between the material phases of the gas-off medium but it actually responds to a change in the gaseous phase.

The above empirical data were not sufficient to establish actual proof that the electrode was measuring water-vapor, partial pressures in the gas stream from the digester. A more formal procedure based on concrete data was necessary before an absolute statement could be truthfully made.

With the electrode at position 1 (Fig. 2) the ability to obtain a conductance reading was hampered by the pull-over operation of the millivoltmeter controller. Hence, a sample point was chosen in the vapor line down-stream from the cyclone separator at D. An electrode, at this point showed even greater sensitivity to pull-over than it did at the neck of the digester.

A discarded steam-trap with the bucket mechanism removed was then used as a sampling chamber E. A valve F regulated the flow of gases to the equipment and the electrode at (2). The above apparatus decreased pull-over reflection to a minimum.

After these conductance readings are taken, what standard of comparison is to be used to determine reaction rate? It has been proven that measurements from a water-filled, thermal system and a pressure element are an index of partial pressure with respect to water vapor.

Operation

If the conductance-time curve for a complete cook exhibits the same trend as the partial, pressure-time curve for the same cook, the conductance variable is a measurement of partial pressure. Figure 3 shows such a comparison. The conductance-time curve is shown as No. 2. The partial, pressure-time curve is shown as No. 3. The latter was formed on a temperature-difference basis with line 1 as the saturation datum. The temperature measurement of the water-filled, thermal system was subtracted from the saturated, steam-temperature equivalent of the pressure of the digester at that instant

There was no attempt to desuperheat the vapors for the thermal measurement. The only, easily-available place for the bulb was in the liquor at 15 feet below the head. Hence not only is superheat present but also a temperature increment caused by hydrostatic head. These departures from absolute measurements do not change the trend of the curve. They merely shift it downward.

The curves 2 and 3 are not for a hybrid set of digester conditions. The digester was on hand-control throughout the entire cook. This procedure insures wide fluctuations or "false pressures." Those were the desired conditions for establishing the trend curves.

That the conductance-time curve 2 exhibits the same trend as the partial-temperature, standard curve 3 may be clearly seen. This is extremely evident in the periods of widest departure from saturated gas conditions. The departure of the curve 2, from the trend established by curve 3 at 59 minutes, was caused by a violent pull-over that reflected into the sampling chamber E.

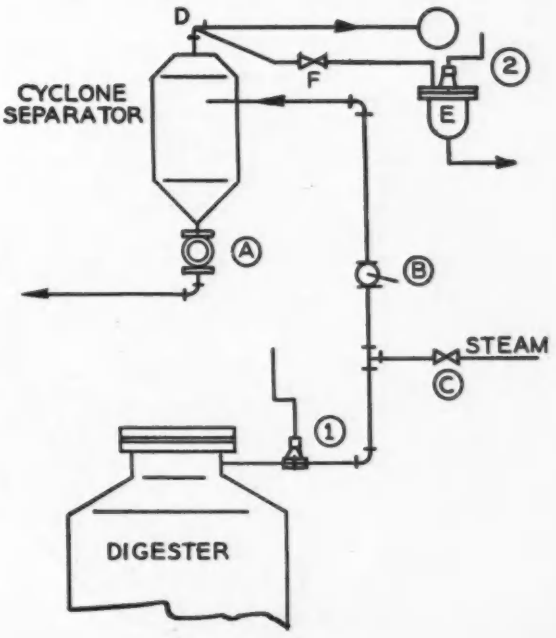


FIG. 2

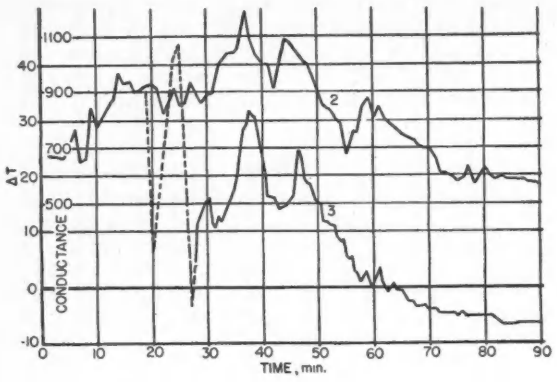


FIG. 3

It may be pertinent at this point to consider from a theoretical standpoint the basis of the variation in resistance of a gas-off stream in terms of partial pressure. That the gas-vapor mixture is the carrier of electrical current can be ruled out immediately. Not only are low pressures necessary but also high potential. The pressure conditions in a neon glow-tube are, most certainly, not those existing in the gas-off line of a digester, and 110 volts is not the value of potential that would induce gaseous discharge.

An acceptable explanation can be made on the basis of liquid entrainment. During the progress of the "cook" there are formed various organic acids such as formic and acetic whose presence in the entrainment would give a conducting quality to the gas-off through a dynamic liquid film between the end of the electrode and the pipeline. The concentration of this conducting quality will, therefore, vary with the amount of gas and vapors, other than steam, present in the gas-off stream.

The fact that the electrode reacts to an entrainment principle may be brought out more clearly by again referring to the extreme sensitivity to pull-over when the electrode was installed in the gas stream from the cyclone separator.

The installation of the sample chamber and the regulating valve produced enough superheat by pressure reduction to dry the gases partially and, hence, reduce the sensitivity to a point where consistent readings could be obtained.

More work is necessary on the exact nature of the conducting principle and its relation to gas composition. That such a principle exists will be further substantiated by actual control results.

Both requirements for the measuring element of an efficient, gas-off control have been met. They are interdependent. A gas-off control element that allows the valve to pull liquor while trying to reduce false pressure is, most certainly, accomplishing only a fraction of its ultimate purpose. Wood cannot be digested by temperature alone; the chemical components must also be present.

Since an electrode to pipeline resistance measurement is a function of both control effects, a recording ohmmeter air controller of the proportioning type is used as a gas-off instrument. The original range of the instrument was 100,000 to infinity ohms. The valve is of the throttle-plug design equipped with a positioner. The latter addition insures accurate valve-response to the change in the controlled air pressure in spite of stem or other friction factors.

The adjustment of the out-put, controlled, air-pressure to the direction of the measurement will be discussed later.

As long as the phase flowing in the gas-off line is gaseous, the instrument will regulate the valve to reduce the false pressure. If pull-over occurs, the control function is taken away from the gas-phase analysis, and a steam-purge sequence, similar to the one previously described, is instituted to eliminate the liquid phase. As soon as the liquor-upset is removed, the operation will automatically return to the gas-phase analysis and subsequent, gas-off valve-positioning.

The first set of illustrations of controller process-action will have the following instrument adjustments.

The resistance change, between pure steam and cooking liquor, will represent a valve action between full closed and full open. If the index pointer of the controller is at the steam value, any resistance

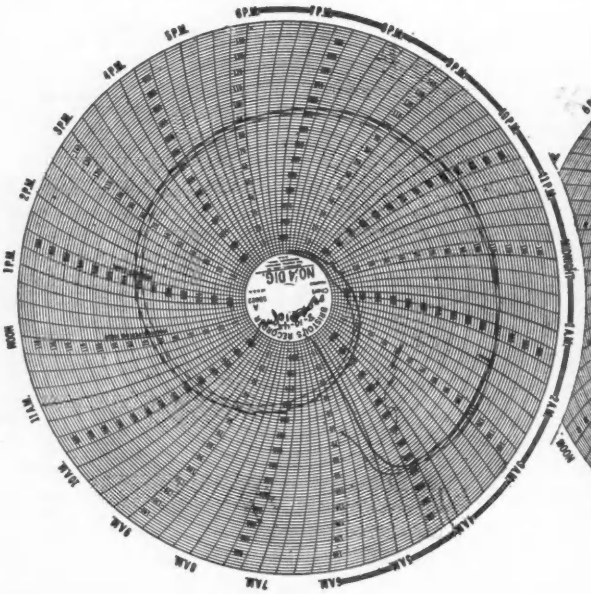


FIG. 4-A

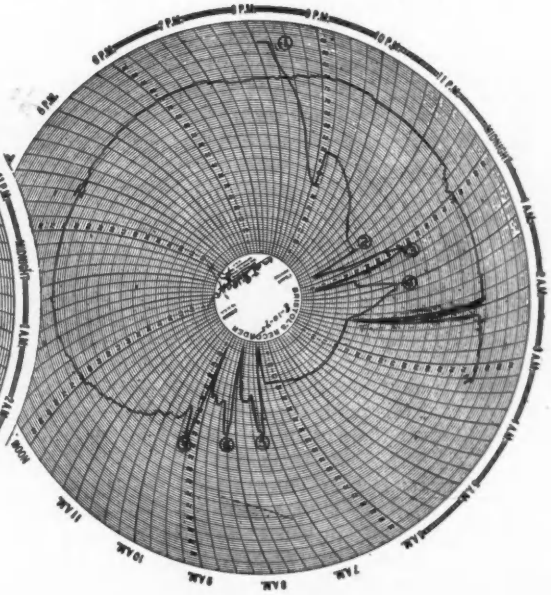


FIG. 4-B

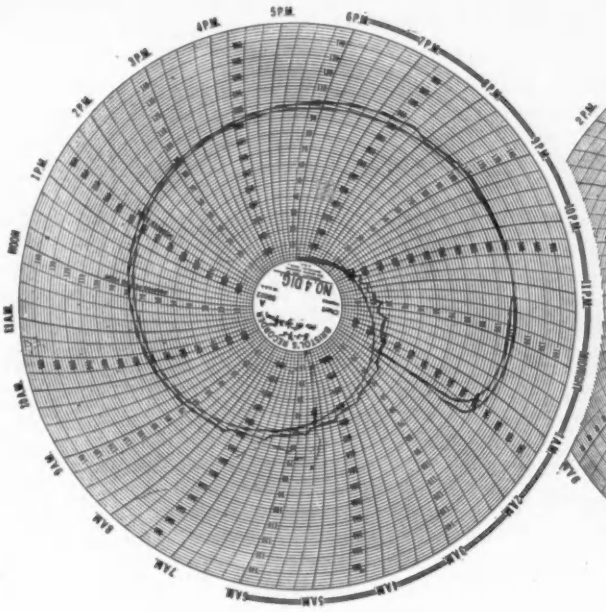


FIG. 5-A

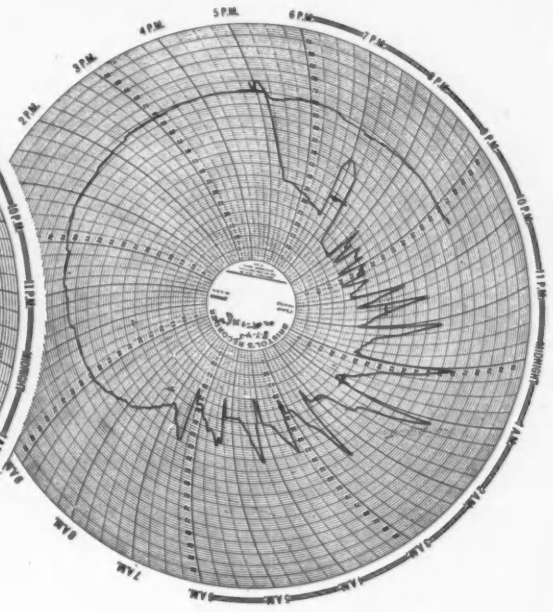


FIG. 5-B

below this point will represent a nonsaturated vapor, the degree of which will depend on how far the recording pen is below the index. At the appearance of liquor, the valve will be wide open until the steam blow-back function causes closure.

The initial resistance of the entrapped air at the beginning of the process is higher than the steam value. A push-button circuit is established to hold the valve open in order to relieve this air. The valve is maintained open until the first pull-over occurs at which point steam is blown back to eliminate it. The instrument is then automatically allowed to control the gaseous phase.

The main steam addition to the main digester, in every case, was hand-controlled with no instrumentation to fix the maximum pressure-value. The reasoning for such a procedure lies in the fact that, if the gas-off controller maintains both liquor in the digester and optimum, partial pressures under hand-controlled steam operation, some idea as to the gas-off, control-efficiency limit may be gained.

Figures 4 and 5 show the results of automatic, gas-off control of an indirect-heated, forced-circulation cook under the above conditions. They represent what will be termed "The long period cooks". The rate of pressure rise is 100 p.s.i., in 2 hours. The charts are of a 2-hour rotation, and the entire curve represents one cook.

Point (1) of the conductance chart-figure 4B, rep-

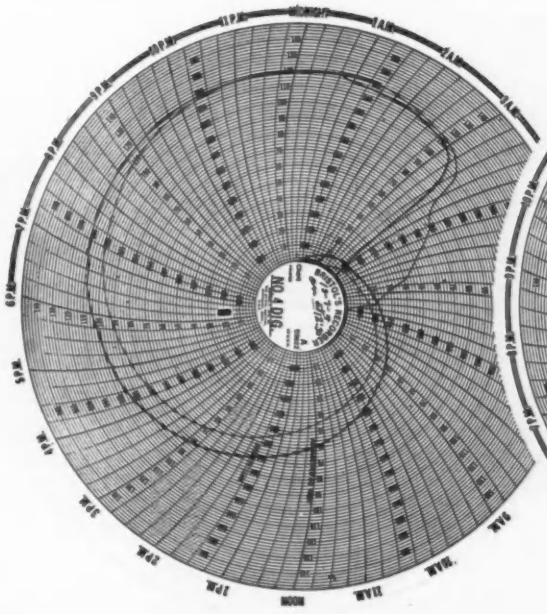


FIG. 6

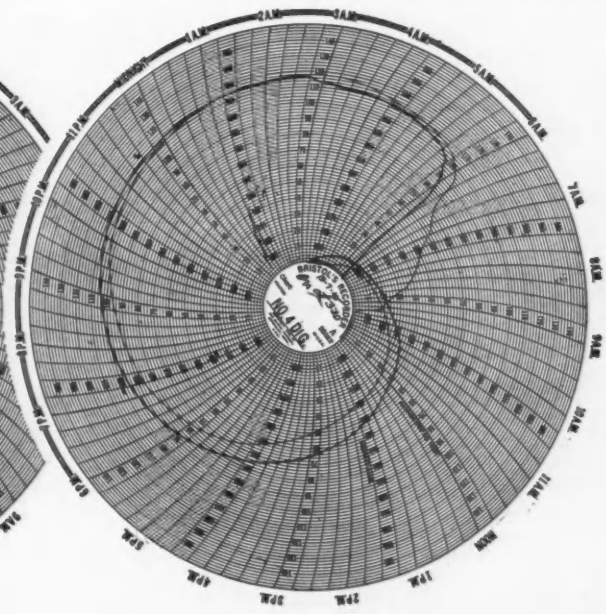


FIG. 7

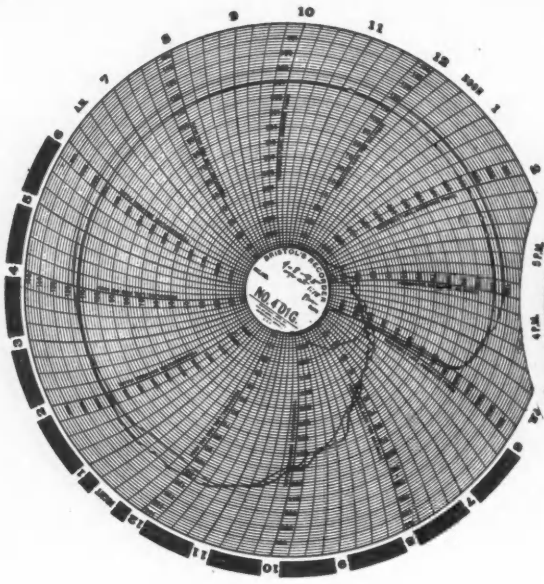


FIG. 8-A

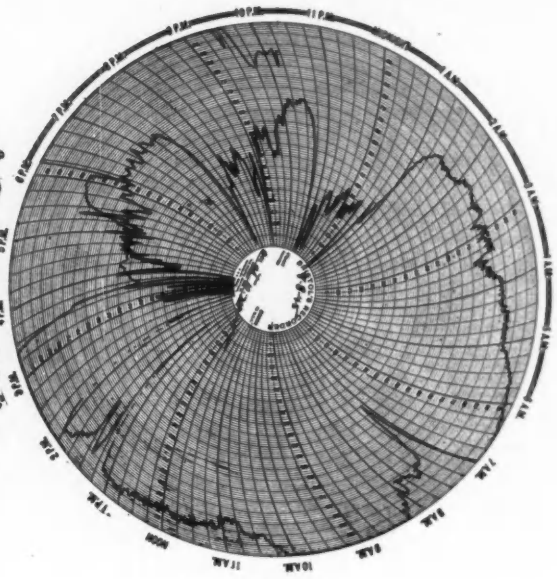


FIG. 8-B

resents full-valve opening to eliminate entrapped air. Pull-over did not occur on this chart until point (2) was reached. Steam was blown, automatically, into the digester to disperse the pull-over as shown by the curve rise to (3). Subsequent actions of this type are denoted by points 4, 5, 6, and 7. It will be noted that, at the height of the reaction, the valve is in its near, open position. As the cook progresses, the resistance value and hence steam, partial pressure increases until at the 2 P. M. point on the chart, the valve is in its near-shut position. The results of such a control action are shown in the temperature-pressure chart in Fig. 4A.

Figures 5A and B show the resulting record for a much wilder cook. The occurrence of pull-overs may be detected by the saw-tooth character of the pressure line in 5A, and much more pronounced by the resistance peaks in the curve 5B.

The charts shown in Fig. 6 and 7 are the results of complete hand-control for the same type of cook. The differences in the partial pressures as exhibited between the two sets of illustrations are apparent by inspection.

Figures 8A and 8B show the results of the control of a direct-heated, natural-circulation cook with a rate of pressure rise to 100 p.s.i. in 1 hour. The moisture content of the direct-steamed, digester gas-off is much higher than that of an indirect-heated digester. As a result the instrument of 100,000 to infinity ohms range did not fit the conditions. A field attempt to reduce the range to a lower limit of 50,000 ohms was successful in the resulting above charts.

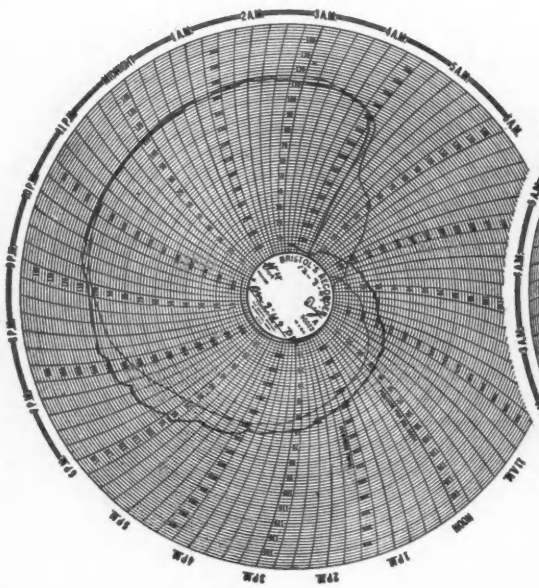


FIG. 10-A

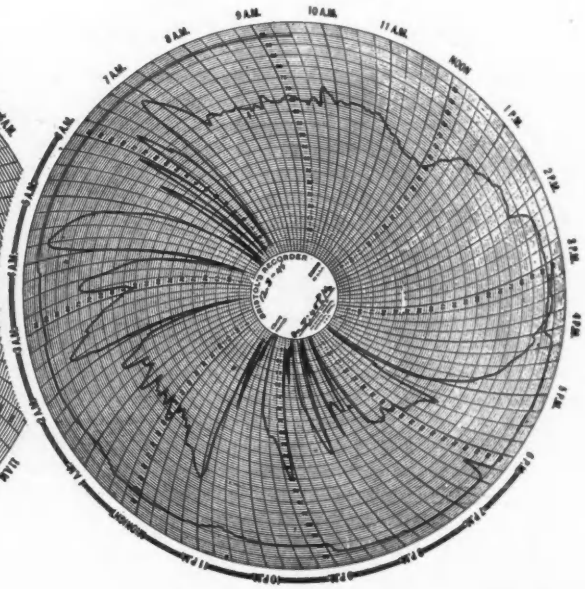


FIG. 10-B

Figure 9 shows a hand-control cook on the same digester under the conditions existing for those in Fig. 8A and 8B.

Again the differences are remarkable in the ability of the controller to maintain the temperature and pressure relationships under such adverse conditions.

One drawback with the above system, appears at this point. Because of the high moisture content of the gases and their accompanying low resistance, there are portions of the cook where the steam blow-back function will operate on slugs of liquor that do not actually constitute a pull-over. Under such rapid and unstable digester operation, the steam blow-back feature must be placed on the manual-operation of a switch. Later a method will be presented to offset this characteristic to a great degree.

Unstable Digester Conditions

The range of the above controller was changed from the original 100,000 to infinity ohms to a range of 10,000 to infinity ohms. During this experimental period there was no opportunity to try this instrument on a direct-heated, natural-circulation cook. An indirect cook of a pressure rise to 110 p.s.i. in 2 hours was available. This is much faster than the original, indirect-cook experimentation in that the pressure rise was 100 p.s.i. in 2 hours. On the face of the two above statements there would seem to be little difference. It must be remembered, however, that the rate of pressure rise at the top of the cook decreases rapidly because of the small differential existing across the steam valve. The result is a small flow of steam to the process.

In order to reach the maximum pressure in a shorter time, direct-steam addition to the indirect-heated digester was necessary. The stability of the operation is greatly decreased usually resulting in violent pull-over of liquor; false pressures increase and the ability of the digester to gas-off properly is decreased.

In the curves shown in Fig. 4A, 4B, 5A, and 5B, the accent is on the existence of gases and vapors other than steam, and the necessity for eliminating them. The stability of the digester was such that the above chart-references could be produced.

An electrode velocity-effect also appeared for the first time. Toward the end of the cook, a critical velocity point was reached where the electrode resistance drops even though steam conditions exist in the gas-off. This action is on the safe, saturated steam side; however, it does not enhance the steam economy of the process.

Under the above, unstable conditions of the digester, a complete reversal of the control action was made. The accent was placed on digester stability with a uniform, continuous gas-off.

All liquor pull-overs may not require the use of steam blow-back to restore the gaseous phase. Some may be eliminated by a decrease in the rate of gas flow and a subsequent readjustment to a value where pull-over does not occur.

Another point to remember is that liquor pull-over does not occur from a stable gas flow to the unstable liquid flow in one operation. There are intermediate conditions that ultimately allow the pull-over to reach the vent line. These intermediate conditions are such that they will indicate on the ohmmeter the presence of possible, liquor flow before it occurs. The approach of unstability is indicated by a drop in resistance of the gas-off stream. This decrease is at first gradual. The rate of resistance drop increases until ultimately the gas phase disappears and a complete drop occurs due to the high liquor conductivity at the electrode, indicating the necessity for steam addition. A liquor pull-over can therefore be detected in the gaseous phase.

If the resistance dropped showing pull-over in the original control scheme, the valve opens wider to induce further instability. On stable, digester operations this latitude is available and the control function has proven this to be true.

If the digester operation is extremely unstable, the condition may be reduced to a minimum by reversing the controller action. The control set-point is at some resistance value for steam as before. If the resistance now drops showing a possible pull-over, the valve in

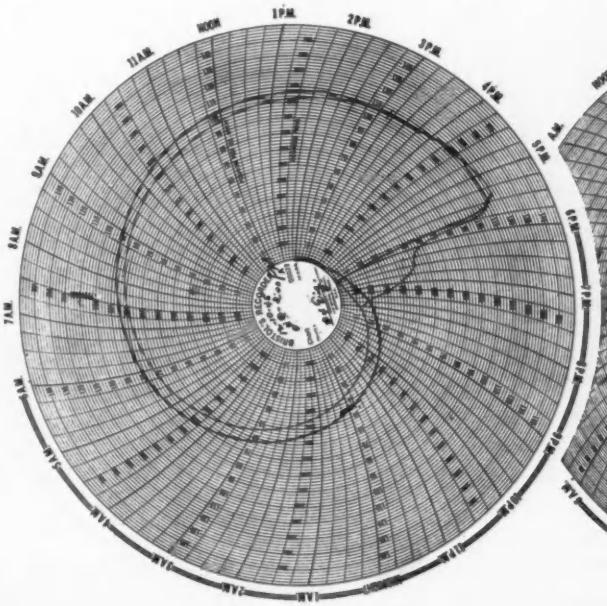


FIG. 11-A

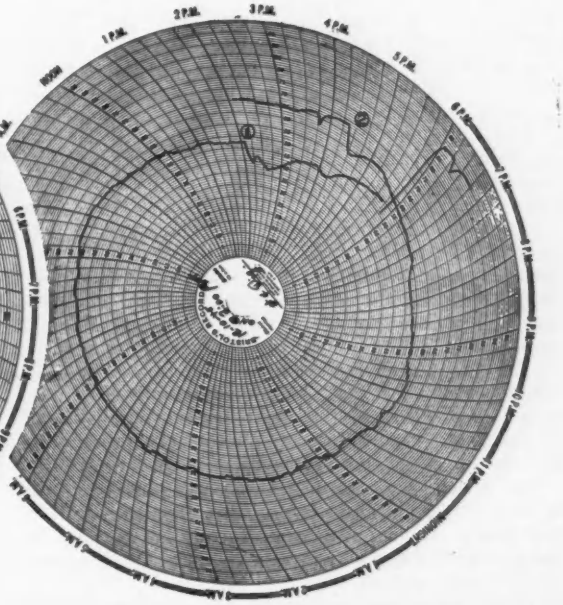


FIG. 11-B

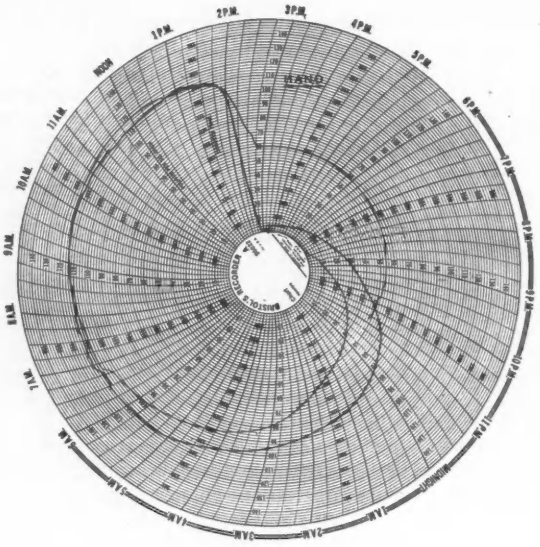


FIG. 12

the gas-off line tends to close rather than open, as before. This slight closure will, in 80% or more of the cases, restore the process to stability.

If the upset is such that blow-back is necessary, the valve will be in its minimum position on steam blow-back.

The net effect of this control is to find a point of gas resistance in relation to the set-point, and hence, a valve opening that will produce the maximum gas-off for a minimum of pull-over.

Figures 10A and 10B show the ragged temperature-pressure relationships and the unstable, conductivity conditions existing in the above digester based on the original control function.

Figure 11A and 11B show the same process after reversing the controller. At points 1 and 2 there occurred upsets in stability that would have ultimately become of major magnitude had they been allowed to proceed. A slight valve-closure prevented this. The fact is very apparent that a constant, slower rate of venting is much more desirable than a greater rate intermittently.

Figure 12 shows the same process under hand-control.

The fact may be noted here that when a steam condition is reached the valve does not tend to shut. As such, the action does not enhance steam economy. However, at the St. Joe Paper Company, when the temperature and pressure readings were such that saturated steam was indicated, the controller was switched to the pneumatic manual position and the valve adjusted to some near-closed position. The cook was then allowed to soak at this reduced gas-off rate until blown. This function can be made automatic.

The factors effecting digester operation may be roughly classified as: a. kind and condition of the wood, b. pressure of the steam supply, 3. quality of chemical addition, d. final volume of liquor, and e. time.

There are some that believe that automatic gas-off control is the addition that will take up the slack in the process and produce uniformly good pulp in spite of wide ranges of the above variables. This is a gross misconception.

The stability of a digester is, most certainly, related to the final makeup volume of the liquor. An authority has stated that: "too large a volume of liquor, in addition to the unnecessary use of steam, may result in bad cooking for, in that case, it is very hard to relieve pressure without pulling out some liquor through the relief line. Further, at the beginning of the cook when relieving is essential to good circulation the active alkali is not utilized, and a loss of liquor then means a loss of alkali intended for cooking. The result may be as though insufficient alkali had been charged, and the pulp will have a general, rough look with few chips properly cooked."

It is, therefore, imperative that the correct, minimum, volume makeup be used, taking into account the initial moisture content of the wood.

In the case of the last type of control it will absolutely refuse to gas-off a digester whose stability is such that it will pull more liquor than gas. This is as it should be for no automatic control can be designed to cover initial operating mistakes. Under such conditions the control pen will ride the bottom of the chart for the entire operation if manual control is not instituted. This action should be an indication to the operating personnel that the moisture balances of the digester are not correct and will thereby give a means for detecting and correcting the condition of the next cook.

As stated in the title, this report is one of a progress nature. There are loose ends to be gathered notably in the electrode design. This portion of the project will be completed in the very near future.

Acknowledgment

It is extremely gratifying that the pulp and paper industry takes such a keen interest in process-engineering development. So much so that the disposal of their plant facilities, knowledge, and time are given freely in an effort to perfect new ideas. As a member of this industry, the St. Joe Paper Company is no exception. Their patience and help, in the development of this project, is sincerely appreciated.

References

1. Manufacture of Pulp & Paper, Vol. 3, Section 5, Paragraph 73.
2. Cowherd, Robert D., How liquor-gas phase control is applied to sulphate digesters. *Southern Pulp and Paper J.*, Volume 8, No. 2 (July 15, 1945).

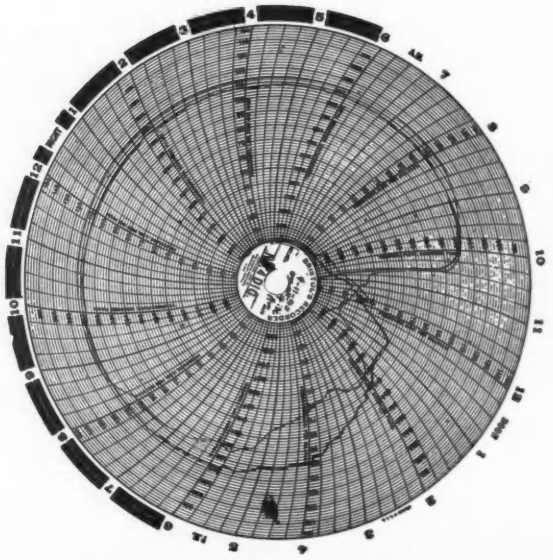
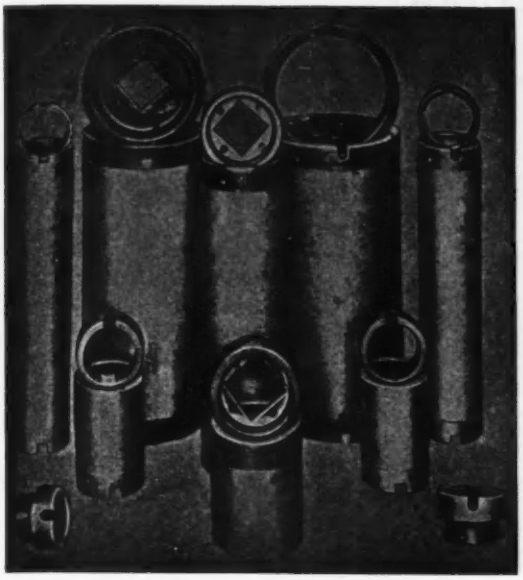


FIG. 9



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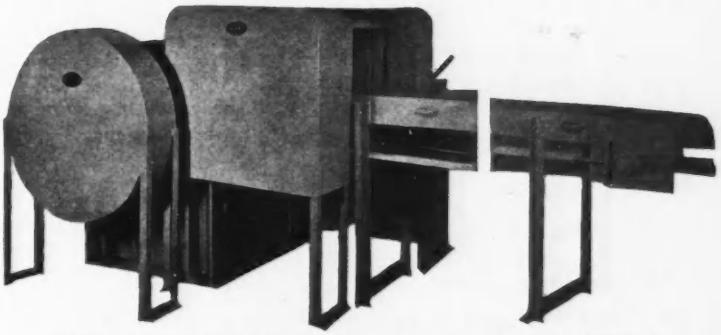

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NEW YORK IMPORTS

WEEK ENDING NOVEMBER 17, 1946

SUMMARY

Newsprint .....12,498 rolls
Paperhangings .....53 pkgs.
Wall Paper .....7 bls.
Filter Paper .....17 cs.
Transparent Paper ..... 1 cs.
Packing Paper .....30 bls.

NEWSPRINT

International Paper Co., International #1, Gatineau, 313 rolls.

News Syndicate Co., Colabee, Baie Comeau, 6288 rolls.

H. G. Craig Co., A.C.D., Donnacona, 358 rolls.

N. Y. Tribune, Inc., Markland, Liverpool, N.S., 887 rolls.

World Telegram, Markland, Liverpool, N.S., 1675 rolls.

Brooklyn Eagle, Markland, Liverpool, N.S., 1056 rolls.

Herald Statesman, Inc., Markland, Liverpool, N.S., 72 rolls.

7 Seas Mercantile Transportation Co., Markland, Liverpool, N.S., 282 rolls.

Richmond Newspapers, Inc., Markland, Liverpool, N.S., 1567 rolls.

PAPERHANGINGS

W. H. S. Lloyd & Co., Fort Cadotte, London, 53 pkgs.

WALLPAPER

W. H. S. Lloyd & Co., Fort Cadotte, London, 7 bls.

PACKING PAPER

J. P. Heffernan Co., President Polk, Genoa, 30 bls.

FILTER PAPER

H. Reeve Angel & Co., Inc., Fort Cadotte, London, 17 cs.

TRANSPARENT PAPER

J. E. Bernard & Co., Noordam, Rotterdam, 1 cs.

RAGS, BAGGINGS, ETC.

American Express Co., Examiner, Haifa, 103 tons rags.

E. J. Keller Co., Inc., Examiner, Alexandria, 61 bls. cotton waste.

Padawer & Co., Willamette Victory, Bombay, 149 bls. cotton waste.

Camden Fibre Mills, Willamette Victory, Bombay, 252 bls. cotton waste.

O'Brien Products, Inc., Willamette Victory, Bombay, 339 bls. cotton waste.

Continental Bank Trust Co., Willamette Victory, Genoa, 165 bls. hemp waste.

Castle & Overton, Inc., Willamette Victory, Genoa, 74 bls. rags.

E. J. Keller Co., Inc., James Bennett Moore, Liverpool, 80 bls. old cotton rags.

Tradesmans National Bank Trust Co., James Bennett Moore, Liverpool, 55 bls. cotton rags.

Amicale Wool Service Co., Inc., Medina, Vera Cruz, 33 bls. woolen rags.

M. Segal & Sons, Medina, Vera Cruz, 2 bls. woolen rags.

S. Godfrey, Inc., Medina, Vera Cruz, 4 bls. rags.

State Street Trust Co., Medina, Vera Cruz, 78 bls. wool rags.

Harmon Lichtenstein, George E. Merrick, Glasgow, 561 bls. jute hessian scrim.

Tradesmans National Bank Trust Co., George E. Merrick, Glasgow, 632 bls. old webbing.

(——), Fort Cadotte, London, 50 bls. rags.

New England Waste Co., Temeraire, Tuticorin, 1750 bls. cotton waste.

Schimmel Trading Co., Temeraire, Bombay, 158 bls. cotton waste.

Brandwein Mazur Co., Temeraire, Bombay, 450 bls. cotton waste.

Lush Cotton Products Co., Inc., Temeraire, Bombay, 450 bls. cotton waste.

Buffalo Batt & Felt Corp., Temeraire, Bombay, 200 bls. cotton waste.

Volkart Bros., Inc., Temeraire, Bombay, 400 bls. cotton waste.

McKay & Co., Temeraire, Bombay, 200 bls. cotton waste.

New England Waste Co., Temeraire, Bombay, 1550 bls. cotton waste.

Ayres W. C. Jones Co., Temeraire, Bombay, 100 bls. cotton waste.

W. J. Green Co., Inc., Temeraire, Bombay, 250 bls. cotton waste; 250 bls. old jute rags.

Lush Cotton Products Co., Inc., Temeraire, Cochin, 200 bls. cotton waste.

Volkart Bros., Inc., Temeraire, Cochin, 200 bls. cotton waste.

CASEIN

Eugenio Lang, Inc., Whittier Victory, Buenos Aires, 832 bags, 49920 kilos.

Aralac, Inc., Whittier Victory, Buenos Aires, 834 bags, 50040 kilos.

GLUESTOCK, ETC.

A. Schmoll, Inc., Medina, Vera Cruz, 411 bags hidecuttings.

Darmstadt Scott & Courtney, Medina, Vera Cruz, 207 bls. hidecuttings.

J. Gorvers, Santa Luisa, Callao, 53 bdls., 19 bls. gluestock.

F. Coff, Noordam, Rotterdam, 100 bags boneglue.

WOODPULP

National City Bank, Svaneholm, Kotka, 1016 bls. white dry mechanically ground woodpulp.

WOODPULP BOARDS

Jay Madden Corp., Svaneholm, Kotka, 409 rolls.

ALBANY IMPORTS

WEEK ENDING NOVEMBER 17, 1946

Pagel Horton & Co., Inc., Bernhard Ingelsson, Gefle, 5334 bls. woodpulp; 6815 bls. dry sulphite pulp.

Pagel Horton & Co., Inc., Bernhard Ingelsson, Sikea, 6096 bls. sulphite pulp.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 17, 1946

(——), Willamette Victory, Leghorn, 17 bls. cotton waste.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 17, 1946

National City Bank, Svaneholm, Kotka, 1016 bls. white dry mechanically ground woodpulp.

Pulp Sales Corp., Svaneholm, Kotka, 1200 bls. prime bleached sulphite pulp; 5100 bls. prime unbleached sulphite pulp; 3350 bls. prime unbleached sulphate pulp; 515 bls. unbleached sulphite pulp.

Madden, Reeve Angel & Co., Inc., Svaneholm, Kotka, 431 rolls newsprint.

September Import Record Off From August Mark

WASHINGTON — United States imports of paper, paperboard, and paper products in September totaled 304,845 tons, the Department of Commerce, reported this week. These imports were about 6,000 tons below the August level but 58,000 tons greater than the lowest point of the year recorded in February, according to the Pulp and Paper Unit, Office of Domestic Commerce.

Of total imports in this group during September, paper represented 301,113 tons, paperboard 3,472 tons, and paper products 260 tons.

Within the paper group, September imports of wrapping paper, amounting to 703 tons, dropped 1,210 tons below the peak reached in August.

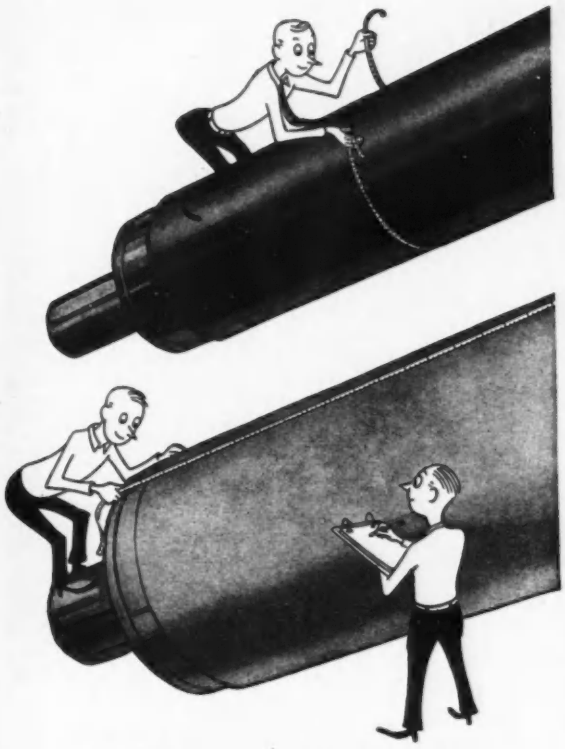
Pulpwood imports in September were 28,525 cords below those in August, while wood pulp imports were 14,276 tons less, in similar comparison.

September exports of paper, paperboard, and paper products, totaling 21,448 tons, were 10,378 tons below the August figure and reached the lowest level of exports this year.

Of total exports in this group during September, paper amounted to 9,669 tons, paperboard 6,175 tons, and paper products 5,604 tons.

Newsprint exports in September, totaling 1,029 tons, recorded the lowest volume for any month of 1946.

September exports of pulpwood and wood pulp increased 103 tons and 743 tons, respectively, over those in August.



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Week's Record of Trends in The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL,
Wednesday, November 20, 1946.

At the moment, paper, paperboard and pulp manufacturers, each in turn, seem to be awaiting greater clarification in the outlook for raw materials prices before they establish something like settled prices of their own. Reports indicate a very spotty market for all segments of the industry. Generally, prices have gone up, some more than others, with trade quarters the country over indicating another 4 to 6 weeks will lapse before the over-all price structure takes on any semblance of stability. Representative estimates, meanwhile, seem to point to increases in paper prices ranging from 6½ to 11 per cent as a very likely average. Needless to say, there will be wide differences between individual categories. Speculators have cropped up here and there with hidden inventories to capitalize on a free market, but they are the exception and should not be regarded as pointing up an inflationary trend. Most paper manufacturers seem to be basing prices on a probable increase of about 10 percent in pulp prices.

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Labor costs will undoubtedly influence the general paper price trend. While the work week continues to decrease, take-home pay continues to rise to the highest levels on record. For the past six months hourly earnings in the paper and pulp industry were above the $1 mark. For paper and allied products, average weekly earnings total about $43.10; while the paper and pulp segment of the industry averages about $46.02. There are indications of improvement in the supply of mill labor, although it should not be concluded that labor problems in the mills do not exist. This is evidenced by the fact that the rate of labor turnover, while declining, still remains considerably above prewar peacetime levels. Woods labor is still the biggest problem, and as a result some mills are spending sizable amounts in improving the food and living quarters of woods workers.

Domestic paperboard production this year will exceed 8,200,000 tons, which will be the highest ever recorded in the industry, according to latest trade reports. Meanwhile, very strong demand continues to drain production. Waste paper, a substantial factor in paperboard production, continues tight in all sections, except in the West where supplies are reported relatively plentiful. The recent merger of the St. Regis Paper Company and the Florida Pulp and Paper Company is a bright spot in the tight multi-wall paper bag situation. An increase of more than 500,000,000 units in annual production of these bags will be made possible through a program of expansion at the Florida properties.

The index of general business activity for the week ended November 9 rose to 142.2 from 140.1 in the previous week, compared with 124.2 for the corresponding week in 1945. The index of paperboard production rose to 172.6 from 167.0 in the previous week, compared with 154.7 for the corresponding week in 1945.

Paper production for the week ended November 9 was estimated at 106.8 percent, compared with 107.2 for the preceding week, with 97.0 for the corresponding week in 1945, with 91.3 for 1944, with 89.6 for 1943, and with 88.5 percent for the corresponding week in 1942.

Paperboard production for the week ended November 9 was 102.0 percent of capacity, compared with 100.0 for the preceding week, with 97.0 for the corresponding week in 1945, with 96.0 for 1944, with 95.0 for 1943, and with 83.0 percent for the corresponding week in 1942.

Wood Pulp

Swedish producers through their agents here have indicated that, because of decontrol, United States consumers can expect to receive approximately 150,000 tons of pulp during the remaining open water year and at least 600,000 tons next year from Sweden. Decontrol, meanwhile, is also expected to check any diversion of Canadian supplies and tend to encourage production of special grades of wood pulp now in short supply.

While no definite trend has been established as yet, reports would seem to indicate an over-all rise in pulp prices of 10 percent. To date, "on dock" quotations have been reported all the way from $89.00 to $94.00 per ton for ordinary grades, and $120 to $126.00 per ton for bleached grades of wood pulp.

Rags

Fine paper mills are reported outbidding one another for rags, as the supply of cotton is still very dubious. These mills are desperately building up inventories of rags as substitutes for scarce pulp, and are paying fancy prices. Cotton cuttings are still very strong with most all offerings gobbled up at a real profit to dealers.

Old Rope and Bagging

Demand for Manila rope remains relatively good with prices about the same or slightly higher than previous ceilings. Soft jute is reported 5.25c to 5.50c per pound.

Decontrol seems to have had little or no effect on bagging prices. Paper mills already have fair bagging inventories, and are not overanxious in their bids. Scrap burlap continues $4.75 delivered. Gunny is stronger at $4.50 per 100 pounds shipping point.

Waste Paper

Uncertainty with respect to future pulp prices and supply has thrown the waste paper market into more than a mild flurry. Bidding for high grade waste papers is very active and prices on small lots are considerably above old ceilings. Not enough business has been done in these grades to establish anything like a reliable market quotation, but No. 1 newsprint and No. 1 mixed are currently up $5 to $8 over old ceilings.

W. S. Brooks on Powell Board

VANCOUVER, B. C.—W. S. Brooks has been apointed to the board of directors of the Powell River Company, filling the vacancy created by the death of his father, S. D. Brooks. Mr. Brooks, junior, served during the war as a bomber pilot overseas, and is associated with the logging division of the Powell River Company. He is a member of the Vancouver Board of Trade, and the Capilano Golf Club.

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, November 20, 1946.

BLANC FIXE — Demand continues active as raw materials remain tight. Pulp is currently quoted at $40 per ton, in barrels, car lots, at works; the powder is currently quoted at $60 per ton, car lots, f.o.b. works.

BLEACHING POWDER — Shipments temporarily delayed due to drum shortage, supplies reported adequate to meet demand. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots at works.

CASEIN—Current prices on processed acid-precipitated casein are reported around 46 to 49 cents per pound for both domestic and Argentine grades; f.o.b. shipping point, with quantity not specified at the present time.

CAUSTIC SODA — Supplies tightest ever as market remains critical. Shipments are behind schedule. Cutback production further reduces stocks. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds. All prices car lots.

CHINA CLAY—Supplies are becoming tighter as demand continues to increase. Quotations remain unchanged. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $22 to $25 per long ton, ship side. All prices quoted in car lots.

CHLORINE — Demand continues to exceed output, market tight, stocks low. Tank cars and steel container situation slow shipments. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard, New York, B & D, $8.30; E, $8.50; F, G, H, I, M, N, WG & WW, $8.70. All prices in car lots for drums and bags.

SALT CAKE — Demand increasing with supplies showing some improvement. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots f.o.b. shipping point.

SODA ASH—Supplies continue short, demand active, previous orders filled. Export inquiry very heavy. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Supplies are showing steady improvement. Previous orders filled. Starch prices continue unchanged. The pearl grade is quoted at $4.77 per 100 pounds; powdered starch at $4.87 per 100 pounds; both prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Strong seasonal demand is reported with stocks plentiful to meet all requirements. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton. All prices in car lots.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices on car lots.

MARKET QUOTATIONS

With the sudden, but not unforeseen, elimination of all OPA price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume of business still is being done, under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market. As the emergency conditions pass, it may be expected that the quotations will become more generally applicable.

Paper

(Delivered New York)

Standard News, per ton—
Roll, contract ....$84.00 @ —
Sheets ..... 93.00 @ —

Kraft—per cwt.—Carload Quantities
Zone A, Delivered
Superstandard
Wrapping .....*$5.25 @ —
No. 1 Wrapping.. *5.00 " —
Standard Wrapping*4.75 " —
Standard bag .....*4.75 " —

* Prices for Standard Wrapping are for 40 lb. base weight; for Standard Bag for 30 lb. base weight.

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.
Wh. No. 1 Frd. ... 1.10 @ 1.20
Wh. No. 1 M. G. .. 1.10 @ 1.20
Wh. No. 1½ ..... .95 @ 1.10
Wh. No. 2 ..... 1.00 @ 1.10
Wh. Anti-Tar. .... 2.25 @ 3.50
Kraft Unbl. ..... 1.15 @ 1.25
Manila No. 2 ..... .90 @ 1.05

Toilet—Per Case of 100 rolls 1 M Sheets.
Unbleached ..... 4.47 @ 5.50
Bleached ..... 6.50 " —

Paper Towels — Per Case of 3750 Zone 1.
Wh. C. fold 11x13½ 4.09 @ —
Br. Sgl. fold 10 in. 2.37 " 2.48
Br. M'tif'd 9½x14¾ 3.48 " —
Br. M'tif'd 9½x9¼ 2.37 " 2.48

Manila—per cwt.—C. l. f. a.
No. 1 Jute .....11.25 @ —
No. 1 Manila 35 lb. 6.00 " 7.00

Boards, per ton—
News .....*59.00 @ —
Chip .....*58.00 @ —
Sgl. Mla. Ll. Chip*67.00 @ —
White Pat. Coated*86.00 @ —
Kraft Liners 50 lb.*74.00 " —
Binders Boards... 84.00 " 116.00

Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.75@$46.75	$40.90@$48.00
100% Rag.	32.85 " 38.50	34.00 " 40.00
85% Rag	.... "	30.55 " 38.75
75% Rag	24.30 " 28.50	24.45 " 30.00
65% Rag	.... "	.... " ....
50% Rag	20.05 " 24.50	21.25 " 25.75
25% Rag	17.85 " 21.75	19.00 " 23.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers.. White, Assorted Items

	Bonds	Ledgers
No. 1	$12.00@$14.50	$13.15@$16.00
No. 2	11.25 " 13.75	12.25 " 15.00
No. 3	" "	" "
No. 4	10.60 " 13.00	11.75 " 14.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

No. 1 Glossy Coated..	$14.70@$16.75	
No. 2 Glossy Coated..	13.75 " 15.50	
No. 3 Glossy Coated..	13.20 " 16.00	
No. 4 Glossy Coated..	12.80 " 14.50	
No. 1 Antique (Watermarked)	11.35 " 12.75	
No. 2 Offset	10.65 " 12.25	
A Grade E. F.	10.60 " 12.00	
A Grade S. & S. C. ..	11.00 " 12.50	
B Grade E. F.	10.30 " 11.75	
B Grade S. C.	10.70 " 12.25	
C Grade E. F.	10.00 " 11.50	
C Grade S. C.	10.40 " 12.00	
D Grade E. F.	9.70 " 11.00	
D Grade S. & S. C. ..	10.10 " 11.50	

Ivory & India at $.50 cwt. extra.

Wood Pulp

Domestic Prices and Canadian Manufacturers' Prices, Less Freight Allowances.

Bl. Softwood Sulphite	$103.50
Unbl. Softwood Sulphite	90.00
Bl. Hardwood Sulphite	100.50
Unbl. Hardwood Sulphite	87.50
N. Bleached Sulphate	103.50
S. Bleached Sulphate	97.00
N. Semi-Bleached Sulphate	98.00
S. Semi-Bleached Sulphate	91.50
N. Unbl. Sulphate	83.50
S. Unbl. Sulphate	76.50
Bleached Soda	93.50
Unbleached Soda	88.00
Groundwood	64.00
Ground—Machine Dried	67.00
Sulphite Screenings	50.00
Sulphate Screenings	44.00
Groundwood Screenings	37.50
N. Unbl. Sulphate Sideruns	83.50
S. Unbl. Sulphate Sideruns	76.50
Standard Newsprint Sideruns	64.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area)	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

	Per 100 lbs.
White Shirt	$10.50
Light Silesias	7.50
Unbleached Muslin	11.00
White Back Blue Overalls	8.25
Blue Overalls	7.75
Unbl. Fancy Shirt	4.50
Light Percales	5.50
Light Prints	5.25
Washables	4.00
Blaechable Khaki	5.50
Unbleachable Khaki	5.00
Cottonades	4.50

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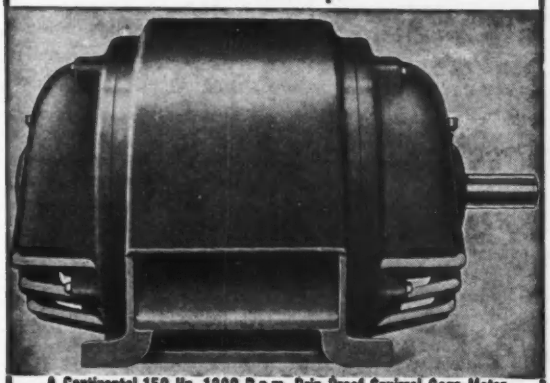

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NEWFANE, N. Y.
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Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked	$5.00
No. 1 Whites Miscellaneous	4.25
No. 2 Whites Repacked	4.00
No. 2 Whites Miscellaneous	3.50
Blue Overalls	3.75
Thirds and Blues Repacked	3.00
Thirds and Blues Miscellaneous	2.50
No. 1 Roofing Rags	1.85
No. 2 Roofing Rags	1.75
No. 3 Jute Bagging	1.65
No. 4 Brussels and hard back carpets	1.65
No. 5A Roofing Rags	1.65

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.
New Dark Cuttings	$6.00 to ....
New Mixed Cuttings	6.50 " ....
Light Silesias	9.00 " 10.00
Light Flannelettes	8.00 " 9.00
New White Cuttings	13.00 " 15.00
Fancy Shirt Cuttings	9.00 " 10.00
Light Prints	8.00 " 10.00
Bleachable Khaki, No. 1	7.00 " 7.50
Unbl. Khaki, No. 1	6.25 " 6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.
No. 1 White Linens	$14.00 to 16.00
No. 2 White Linens	12.00 " 13.00
No. 3 White Linens	8.00 " 9.00
No. 4 White Linens	8.00 " 9.00
No. 1 White Cottons	10.00 " 12.00
No. 2 White Cottons	8.00 " 9.00
No. 3 White Cottons	6.50 " 7.00
No. 4 White Cottons	5.00 " 5.50
Extra Light Prints	7.50 " 8.00
No. 1 New Light Prints	6.25 " 6.75
Med. Light Prints	5.25 " 5.75
Dutch Blue Cottons	5.25 " 5.50
Checks and Blues	4.00 " 4.25
Linsey Garments	4.50 " 5.00
Dark Cottons	3.75 " 4.00
Old Shopperies	3.25 " 3.50
New Shopperies	3.25 " 3.50

BAGGING

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny, No. 1	$4.75 to 5.00
Domestic Gunny, No. 1	4.25 " 4.50
Light Wool Tares	4.50 " 4.75
Heavy Wool Tares	4.75 " 5.00
Bright Bagging	4.25 " 4.50
Foreign Manila Rope	6.00 " 7.00
Domestic Manila Rope	5.75 " ....
Jute Strings	4.50 " 5.00
No. 1 Sisal Strings	4.00 " 4.50
Mixed Strings	1.75 " ....

Waste Paper

Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00 @ $110.00
No. 1 Hard White Envelope Cuts	85.00 " 100.00
No. 1 Hard White Shavings, unruled	100.00 " —
No. 1 Hard White Shavings, ruled	80.00 " 90.00
Soft White Shavings, one cut	85.00 " 90.00
No. 1 Soft White Shavings	75.00 " 80.00
Soft White Shavings, Misc.	65.00 " —
No. 1 Fly Leaf Shavings	40.00 " —
No. 2 Fly Leaf Shavings	(nominal)
No. 1 Groundwood Fly Leaf Shavings	30.00 " 33.00
No. 2 Mixed Groundwood Fly Leaf Shavings	(nominal)
Mixed Colored Shavings	(nominal)
Mixed Groundwood Colored Shavings	(nominal)
Overissue Magazines	(nominal)
No. 1 Heavy Books & Magazines	38.50 " —
Mixed Books	22.00 " 25.00
No. 1 White Ledger	50.00 " 52.00
No. 2 Mixed Ledger, colored	40.00 " 45.00
New Manila Envelope Cuttings, one cut	65.00 " 75.00
New Manila Envelope Cuttings	65.00 " 75.00
Extra Manilas	(nominal)
Mixed Kraft, Env. & Bag Cuttings	70.00 " —
Kraft Envelope Cuttings	80.00 " 85.00
Triple Sorted, No. 1 Brown Soft Kraft	55.00 " —
New 100% Kraft Corrugated Cuttings	55.00 " 60.00
No. 1 Assorted Old Kraft	40.00 " —
New Jute Corrugated Cuttings	27.00 " —
Old 100% Kraft Corrugated Containers	(nominal)
Box Board Cutings	23.00 " —
White Blank News	45.00 " —
Overissue News	35.00 " —
No. 1 News	25.00 " 26.00
No. 1 Mixed Paper	19.00 " 21.00
Old Corrugated	28.00 " 30.00
Mill Wrappers	22.00 " 25.00

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—		
India	.26 ●	—
White Hemp	.26 "	—
Fine Polished—		
Fine India	.31 "	—
Unpolished—		
Box	.20¼ "	—
Paper Makers	.20 "	—
Tube Rope	.22 "	—
Wall Paper	.23½ "	—
Wrapping	.26 "	—
Soft Fiber Rope	.22 "	—
Cotton	.28 "	—
(Hard Fiber)		
Medium Java	.23 "	—
Mex. Sisal	.21 "	—
Manila	.33 "	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¼
Light Silesias	.05¼
Black Silesias, soft	.03½
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¼
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80 ●	—
Miscellaneous No. 1	3.20 "	—
Miscellaneous No. 2	2.65 "	—
White No. 2—Repacked	2.90 "	—
Thirds and Blues—		
Miscellaneous	1.80 "	—
Repacked	2.20 "	—
Black Stockings—		
(Export)	Nominal	
Roofing Stock—		
Foreign No. 1	Nominal	
Domestic No. 1	1.55 "	—
Domestic No. 2	1.45 "	—
Roofing Bagging	1.35 "	—
Old Manila Rope	5.75 "	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—		
Foreign	Nominal	
Domestic	3.00 ●	3.50
No. 1 Clean Bright—		
Sisal Strings	.04 "	—
No. 2 Clean Bright—		
Sisal Strings	.03 "	—
Sisal Jute	.02½ "	.02¾
Scrap—		
No. 1	3.25 "	3.50
No. 2	1.75 "	1.80
Wool Tares, heavy	4.00 "	4.25
No. 1 New Light Burlap	3.00 "	4.00
New Burlap Cuttings	3.75 "	4.00

Old Papers

(F. o. b. Phila.)

Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½ ●	—
No. 1 Hard White Shavings, unruled	2.87½ "	—
Soft White Shavings, one cut	2.50 "	—
White Blank News	1.65 "	—
Soft White Shavings, Misc.	2.13 "	—
No. 1 White Ledger	2.30 "	—
No. 2 Ledger, colored	2.00 "	—
No. 1 Heavy Books & Magazines	1.92½ "	—
Overissue Magazines	1.67½ "	—
New Manila Envelope Cuttings	2.65 "	—
No. 1 Assorted Old Kraft	1.75 "	—
No. 1 Mixed Paper	.95 "	—
Box Board Cuttings	.72½ "	—
Kraft Corrugated Cuttings	2.25 "	—
Old Corrugated Containers	1.40 "	—
Overissue News	1.00 "	—
No. 1 News	1.00 "	—

BOSTON

Old Papers

Mill Prices, Baled

Shavings, unruled	5.00 @	6.00
Shavings, ruled	5.00 "	6.00
Misc.	5.00 "	6.00
No. 1 Fly Leaf Shavings	1.67½ "	—
No. 2 Fly Leaf Shavings	1.12½ "	—
No. 1 Groundwood Fly Leaf Shavings	1.25 "	—
No. 2 Groundwood Fly Leaf Shavings	.90 "	—
Mixed Colored Shavings	.75 "	—
New Manila Envelope Cuts, one cut	2.87½ "	—
Hard White Envelope Cuts, one cut	3.37½ "	—
Triple Sorted No. 1 Brown Soft Kraft	2.50 "	—
Mixed Kraft Env. & Bag Cuttings	2.75 "	—
Kraft Envelope Cuttings	3.25 "	—
No. 1 Heavy Books & Magazines	1.92½ "	—
New Manila Envelope Cuts, one cut	2.87½ "	—
New Manila Envelope Cuttings	2.65 "	—
White and Colored Tabulating Cards	3.25 "	—
Ground Wood Tabulating Cards	1.35 "	—
White Blank News	1.65 "	—
No. 1 Assorted Old Kraft	3.00 "	3.50
No. 1 Mixed Paper	1.10 "	—
Overissue News	1.35 "	1.50
Box Board Cuttings	.72½ "	—
New Corrugated Cuttings, Kraft	2.25 "	—
Old 100% Kraft Corrugated Containers	1.75 "	—
Old Corrugated Containers	1.60 "	1.70
Jute Corrugated Cuttings	1.07½ "	—

Bagging

(F. o. b. Boston)

Gunny Bagging—		
Foreign	(nominal)	
Domestic	2.75 ●	2.90
Sisal Rope No. 1	*4.75 "	—
Sisal Rope No. 2	* — "	4.00
Mixed Rope	1.60 "	—
Transmission Rope—		
Foreign	(nominal)	
Domestic	2.75 "	3.00
Manila Rope—		
Foreign	(nominal)	
Domestic	5.75 "	—
Soft Jute Rope	4.50 "	5.00
Jute Carpet Threads	3.00 "	3.50
Bleachery Burlap	8.50 "	9.00
Scrap Burlap—		
Foreign	(nominal)	
Domestic	3.00 "	3.25
South America	— "	3.25
Wool Tares—		
Foreign	(nominal)	
Domestic	4.25 "	—
Aust. Wool Pouches	— "	3.40
New Zealand Wool Pouches	— "	3.30
New Burlap Cuttings	4.75 "	5.00
Heavy Baling Bagging	4.00 "	4.20
Paper Mill Bagging	2.50 "	3.00
No. 2 Roofing Bagging	1.35 "	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—		
New Light Prints	.04½ ●	.04¾
Fancy Percales	.04¼ "	.04
New White No. 1	.06¾ "	.07
New Light Flannelettes	.05½ "	.06
Canton Flannels, Bleached	.06 "	.06¼
Underwear Cutters, Bleached	.06¼ "	.06¾
Underwear Cutters, Unbleached	.05¾ "	.06
Silesias No. 1	.06 "	.06¼
New Black Silesias	.03 "	.03¼
Red Cotton Cuttings	.03½ "	.04
Soft Unbleached	.06½ "	.06¾
Blue Cheviots	.05½ "	.06
Fancy	.02¾ "	—
Washable	.02¾ "	—
Khaki Cuttings	.02¾ "	.03
O. D. Khaki	.03½ "	.03¾
Corduroy	.03¾ "	.03¾
New Canvas	.06¼ "	.06¾
B. V. D. Cuttings	.06¼ "	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—		
Repacked	3.80 ●	—*
Miscellaneous	3.20 "	—*
White No. 2—		
Miscellaneous	2.65 "	—*
Twos and Blues, Repacked	2.20 "	—*
Old Blue Overalls	2.25 "	2.50
Thirds and Blues, Repacked	2.20 "	—*
Miscellaneous	1.80 "	—*
Black Stockings	3.50 "	4.00
Roofing Stock—		
No. 1	2.10 "	2.20
No. 2	1.45 "	—
No. 3	1.35 "	—*
No. 4	1.35 "	—*
No. 5, Quality A	1.35 "	—*
Quality B	1.20 "	—*
Quality C	.95 "	—*
Old Manila Rope	5.75 "	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

Mill Prices, Baled

Shavings—		
No. 1 Hard White Envelope Cuts, one cut	3.37½ ●	—
No. 1 Hard White Shavings, unruled	2.87½ "	—
No. 1 Soft White Shavings	2.50 "	—
No. 1 White Ledger	2.30 "	—
No. 1 Heavy Books & Magazines	1.92½ "	—
White Blank News	1.65 "	—
Mixed Kraft Env. & Bag Cuttings	2.75 "	—
No. 1 Assorted Old Kraft	1.75 "	—
Overissue News	1.10 "	—
No. 1 News	1.00 "	—
No. 1 Mixed Paper	.95 "	—
No. 1 Roofing Rags	1.55 "	—
No. 1 Roofing Bags	1.45 "	—

H. M. SPAIN & CO.
COMMERCIAL FORESTERS
COMMERCE TITLE BUILDING
MEMPHIS, TENN.

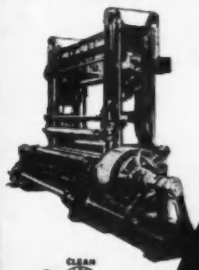
POTDEVIN
MULTI-COLOR
MULTI-SIZE

ANILINE PRINTING PRESSES
Cellophane, Kraft, Glassine, Etc.

POTDEVIN Aniline Presses are in use all over the world. They are designed by experienced engineers and manufactured by experienced workmen.

POTDEVIN builds three types of Aniline Presses; for roll-to-roll work, for direct-connection to bag machines or other paper converting machines, and for high-quality Cellophane printing.

POTDEVIN MACHINE CO.
EST. 1893
1223 38th ST BROOKLYN, N.Y.
POTDEVIN



TYPE DA is made to handle the widest rolls of maximum diameter, at high speeds Every cut is true and clean

LANGSTON
Slitters and Roll Winders

SAMUEL M. LANGSTON COMPANY, CAMDEN, NEW JERSEY

CUTS COSTS IN ANY PAPER MILL

Does it make sense to permit high-priced machinists and maintenance mechanics to cut off piping, angle iron or rods by hand, when MOST OF THOSE SAME JOBS can be cut more conveniently and economically on this portable, low cost machine?

Pays for itself in labor saving and speeds repairs and maintenance jobs. A machine that is FAST BECOMING standard in modern paper mills.

Kalamazoo METAL CUTTING BAND SAW

A VALUABLE TOOL FOR MAINTENANCE

WRITE FOR BULLETIN

KALAMAZOO TANK & SILO COMPANY
KALAMAZOO MICHIGAN

Carley Stiffness Tester

PAPER TESTING INSTRUMENTS
ENGINEERING, SURVEYING, HYDRAULIC ENGINEERING AND METEOROLOGICAL INSTRUMENTS.

Write for Catalogs

W. & L. E. GURLEY
TROY, N. Y., U. S. A.

INDUSTRIAL TYCOL OILS-GREASES

A COMPLETE LINE
OF TYCOL LUBRICANTS SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE

Tide Water Associated Oil Co.
Eastern Division
17 Battery Place, New York, N.Y.

STEAM TURBINES
HELICAL GEARS
WORM GEARS
CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS
PROPELLER PUMPS
CLOSELESS PUMPS
MIXED-FLOW PUMPS
DE LAVAL-IMO OIL PUMPS

DE LAVAL STEAM TURBINE CO.
TRENTON 2, NEW JERSEY

The CLEARING HOUSE

Address replies to advertisements appearing under Box numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

Copy for Classified Advertisements must be in our office on Monday preceding publication

HELP WANTED

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston, Mass.
Specializing in Paper Mill Personnel
Positions Now Open.

Purchasing agent $5,000
Technician experienced paper and pulp mills for Industrial SALES work, $4,000-5,000 yr.
Master mechanic and chief engineer with 1st-class engineer's license. Mass. mill
Tour boss cylinder machines, roofing, felt Southern plant
Mechanical Engineers $400-450 month
Beater engineer rag content stock
Back tender and many others

We invite correspondence (Strictly Confidential) with paper and pulp mill executives seeking new positions and with employers seeking new personnel. N-21

Exceptional opportunity for a young man, between the age of 30 to 35, to work directly with the President of a small Paper Mill producing high grade Specialty Papers, used in the industrial and converting trades. Applicant should be college trained, and have some practical manufacturing and administrative experience in the Specialty Paper field. Interview will be arranged in New York City, or Philadelphia, Pa. Address Box 46-814 care Paper Trade Journal. N-21

WANTED
TOUR BOSS

Experienced in Roofing Felt Mill operations, to be trained for Assistant Superintendent job in New Orleans Plant of long established nation-wide organization. Send complete resume giving experience, education, salary expected, etc., to Box 46-807 care Paper Trade Journal. N-21

SUPERINTENDENT

We need a competent man at our Middletown, Ohio paper mill who can take over full responsibility in operating our 6-cylinder 82-inch Liner mill. This is an unusual opportunity for an experienced man who is looking for a permanent position at a very good salary. PRAIRIE STATE PAPER MILLS, 110 South Dearborn Street, Chicago 3, Illinois. TF

CHEMIST

Our paperboard mill, specializing in the manufacture of folding grades, is seeking an experienced chemist to assist in controlling formulae and improving our quality. An exceptional opportunity is offered to the right man. In your reply give complete background of experience and your desired compensation. Address Box 46-783 care Paper Trade Journal. N-21

SALES ENGINEER

Chance for advancement for the right man in paper machinery and manufacturing. Let's talk over salary and profit participation. Kurt Wandel—Paper Machinery—Honey Brook, Pa. N-21

SALARIED POSITIONS

$2,500-$25,000. This thoroughly organized confidential service of 30 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity secured and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

HELP WANTED

WANTED—TOUR FOREMAN
IMMEDIATE OPENING FOR A TOUR FOREMAN WORKING ROTATING SHIFTS.
ONE M. F. PICKUP AND ONE YANKEE PICKUP FOURDRINIER TISSUE MACHINES ARE OPERATING AT PRESENT. A THIRD HIGH SPEED TISSUE MACHINE WILL BE IN OPERATION IN LATE 1947.
WE PREFER A MAN 30-40 YEARS OF AGE WITH SOME TECHNICAL BACKGROUND. EXPERIENCE ON HIGH SPEED TISSUE MACHINES MAKING BOTH FLAT AND CREPED PAPERS DESIRABLE.
SEND COMPLETE RESUME GIVING EDUCATION AND EXPERIENCE TO
FERNSTROM PAPER MILLS, INC.
Pomona, California D-26

GUMMING SUPERVISOR—Wanted by large well established paper converter. Should have practical experience in production of gummed paper and cloth tapes and gummed specialty papers. Give full details of qualifications and experience. Address Box 46-612 care Paper Trade Journal. D-19

CHEMIST OR CHEMICAL ENGINEER — New York City location. Young man, preferably with training and some experience in pulp and paper making for laboratory and development work in semi-chemical pulping. Send complete information in first letter. Address Box 46-760 care Paper Trade Journal. N-21

WANTED—PAPER MILL MECHANIC who has had experience setting up paper machines and beaters. Good opportunity for capable man to work into permanent position as plant engineer for small tissue mill located in Southern New York State. Address Box 46-782 care Paper Trade Journal. TF

EXPERIENCED PAPER MILL ENGINEER, with knowledge of general engineering work, in long established consulting engineer's office specializing in pulp, paper mills and power plants. Location Manhattan. Excellent opportunity for right man. State complete details, age, experience, availability and salary desired. Address Box 46-779 care Paper Trade Journal. N-21

HELP WANTED

REQUIRED FOR PERMANENT EMPLOYMENT in Newfoundland, Graduate Mechanical or Civil Engineer for development and general engineering work for woods operations, involving an annual cut of 600,000 cords of pulpwood. Good salary and opportunity for qualified engineer. Applications should be sent to Bowater's Newfoundland Pulp and Paper Mills, Limited, Corner Brook, Newfoundland. N-21

WANTED — WAXING FOREMAN to take charge of small waxing plant located in New Hampshire, who has the qualifications of developing a general waxing business. Address Box 46-810 care Paper Trade Journal. N-21

WANTED—Superintendent for small mill. Experience in production of waxing papers desirable. State experience, salary and availability. Address Box 46-805 care Paper Trade Journal. N-21

FIRST CLASS Machine Tender—steady employment on 48 hour week. Base hourly rate $1.41½. Write direct to Superintendent, The Fox Paper Co., Lockland, 15, Ohio. N-21

AN EXCELLENT OPPORTUNITY for a man capable of installing and operating a hardboard plant. Replies will be treated in strict confidence. Address Box 46-817 care Paper Trade Journal. N-21

WANTED—Chemical Engineer for development and research laboratory. Prefer man with experience in fields of coating, printing and laminating for quality converting plant located in Midwest. Responsible position with excellent future. Address Box 46-821 care Paper Trade Journal. D-5

WANTED—Experienced paper makers in the tropics, wages $400 per month, transportation expenses paid from U. S. Address Box 46-820 care Paper Trade Journal. N-21

WANTED—Man with bag converting experience, capable of adjusting, good prospects. Address Box 46-819 care Paper Trade Journal. N-21

SITUATIONS WANTED

Director of Pulp Research and Development

available next spring. More than twenty years activity in the industry; specialty dissolving pulps and sulfate pulp bleaching. Will also consider Canada. Salary $10,000 minimum depending on living condition. Address Box 46-811 care Paper Trade Journal. D-7

SPECIALIST

From paper machines on thru the various finishing and shipping operations. Planning, routing, scheduling, increased output, lower costs and waste. Would like contact company with one or more mills that can stand a lot of improvement.

Address Box 46-787 care Paper Trade Journal. N-21

PAPER CHEMIST—B.S. Degree in Pulp and Paper Chemistry at N. Y. S. College of Forestry August 1946. Seeking opportunity in research or production control of Paper, Paper board or paper products. Address Box 46-799 care Paper Trade Journal. N-21

SITUATIONS WANTED

PLANT MANAGER—thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 46-694 care Paper Trade Journal. N-28

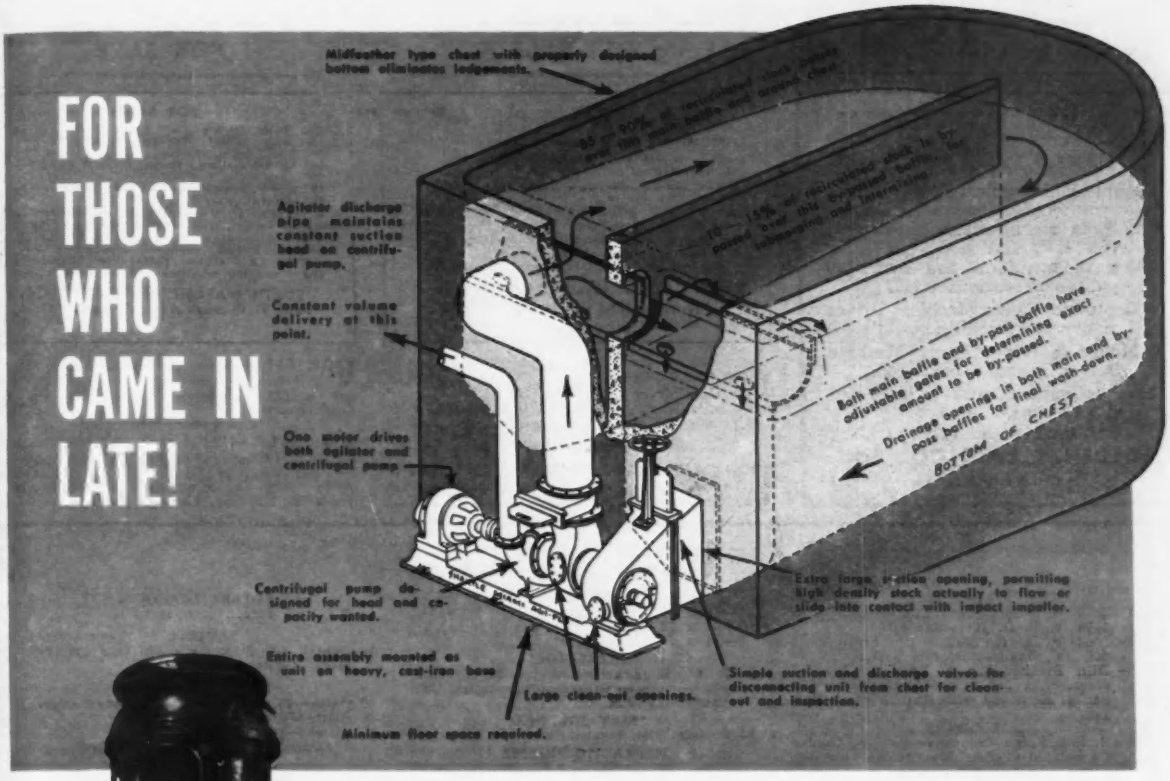
POSITION WANTED — SALESMAN of fine papers, many years experience in metropolitan territory. At present employed. Good list of well rated accounts that need paper. Address Box 46-796 care Paper Trade Journal. N-28

FOR SALE

FOR SALE
NEW AND COMPLETE

Steam Power Plant Equipment, consisting of 2—80000 lbs. per hour 625 psig pulverized coal fired boilers with pulverizers; fans; feed water heater; pumps and controls; dust collector system; pneumatic ash conveyor system; motors and turbine drives. Also 1—5000 Kw bleeder type turbo generator 600 psig initial, extracting at 150 psig and 20 psig, with 4000 sq. ft. surface condenser and 2—2000 Kva transformers and switch gear. Address Box 46-815 care Paper Trade Journal D-12

FOR THOSE WHO CAME IN LATE!


Midfeather type chest with properly designed bottom eliminates lodgements.
85 — 90% of recirculated stock passes over this main baffle and returns to chest.
10 — 15% of recirculated stock is by-passed over this by-passed baffle, for fibrillating and intermixing.
Agitator discharge pipe maintains constant suction head on centrifugal pump.
Constant volume delivery at this point.
One motor drives both agitator and centrifugal pump.
Both main baffle and by-pass baffle have adjustable gates for determining exact amount to be by-passed.
Drainage openings in both main and by-pass baffles for final wash-down.
BOTTOM OF CHEST
Centrifugal pump designed for head and capacity wanted.
Extra large suction opening, permitting high density stock actually to flow or slide into contact with impact impeller.
Entire assembly mounted as unit on heavy, cast-iron base
Large clean-out openings.
Simple suction and discharge valves for disconnecting unit from chest for clean-out and inspection.
Minimum floor space required.

VERTICAL AGI-FLO PUMP

If not already fully conversant with Agi-Flo circulating agitation, the above sketch should interest you. Amplifying still further: To secure an even weight and caliper on your paper machine, you must flow an even volume of uniformly mixed stock to the machine at all times. This can be done much better and at far less cost with a Miami Circulator Agitator working in combination with a centrifugal pump, than is possible with a plunger pump and paddle agitator. This combination unit is arranged to be driven by a single motor. Hence our Agi-Flo pump.

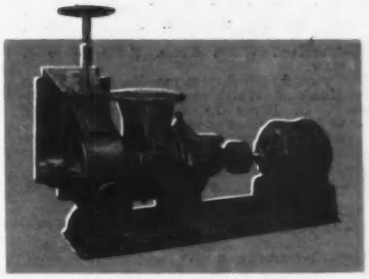
The agitator portion circulates and intermixes the stock in the chest by means of baffles shown. This affords a uniformity of consistency unattainable otherwise.

So long as the agitator portion has sufficient stock to cover impeller, the centrifugal pump has a constant suction head due to the fact that the centrifugal pump takes its stock from the discharge pipe of the agitator. Thus the centrifugal pump works under constant ideal conditions, regardless of amount of stock contained in chest. This can mean only one thing—constant volume delivery!

When plunger pumps are used, each stroke of the plungers means a surge in the delivery. On the other hand an Agi-Flo gives a steady, non-pulsating flow. Overflow from headbox in some cases eliminated.

Installations on practically every known stock attest to its efficiency and economical operation. These mills secured: less waste on paper machine; less maintenance; less horsepower consumption; less space required; and the knowledge that color, size, and alum had been thoroughly diffused. SO CAN YOU—on your present chests.

Hundreds of Agi-Flo systems in operation and on practically all grades.



HORIZONTAL AGI-FLO PUMP

Address Shartle division for more complete information.

SHARTLE BROS. MACHINE CO.

MIDDLETOWN, OHIO

DILTS MACHINE WORKS, FULTON, NEW YORK

Divisions of The Black-Clawson Co., Hamilton, Ohio

FOR SALE

FOR IMMEDIATE DISPOSAL

400 HP Harris Corliss Steam Engine in good condition.

Complete Mechanical Power Transmission Equipment, including Philadelphia Geared Reducer, 125 HP, Ratio 1⅔ to 1, in good condition and over 100 pulleys of various sizes.

2 Complete Paper Machine Drives in operative condition.

2 Moore & White Paper Machine Drives in good condition.

This equipment can be inspected at any time.

MAKE US AN OFFER

GOLDEN FLEECE CO., INC.

Bancroft, Mass. TF

FOR SALE

PAPER MILL EQUIPMENT FOR SALE

110" Hamblet & 80" Finley Sheeters.
68" Rice, Barton, Fales Slitter-Rewinder.
54" Inman shear cut Slitter.
Kidder Rotary Press, 4 colors one side, two on reverse, 34" cut.
54" Brown & Carver hand clamp Power Cutter.
14 x 22 John Thomson.
36" Burton heavy duty Rotary Perforator.
American heavy duty Cross-Cut Saw.
Baling Presses—NEW—Both hand & power.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York (18)
TF

FOR SALE—One 60" dia. x 54" face steel plate surface dryer drum. Surface ½" thick. 5" journals. Address Box 46-818 care Paper Trade Journal. D-12

FOR SALE—40" Seybold Cutter, guaranteed to be in excellent operating condition. Address Box 46-823 care Paper Trade Journal. N-21

FOR SALE

FOR SALE

Can build to order 64" Board Paster, up to 4 plys with available stations.
60" Clark Aiken Sheeter
96" Guillotine Board Cutter
50" & 43" Miehle Printers
66" x 46" Sheridan 4 Post Die Cutter
36" Standard Rotary Printer
Also Slitters; Rewinders; Paper Cutters; Centers; Printers; Die Cutters; Window Cellophane Gluers & Wrappers; Scorers; Creasers; Stitchers; Stayers; Enders; Setters; Wrappers & Gluers. Write for Bulletins listing over 70 paper box and converting machines now available.

SOUTH WABASH ENGINEERING CO.
2929 S. Wabash Ave., Chicago, Illinois
D-19

FOR SALE—Waste Paper Available for paper mill which has some tonnage open; any grades any weights. Address Box 46-804 care Paper Trade Journal. N-21

FOR SALE—450,000 cords pulp wood, or stumpage, in Southern Tennessee and Northern Georgia. Also, 90,000 acres Florida timber and cattle ranch, including some 300,000 cords pulp wood. E. H. Fair, Conway, Arkansas. N-21

FOR SALE

BEATERS
1—2000 lb. Holyoke-Iron Tub Beater.
2—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—400 lb. Gavit—iron tub beater.
1—Dilts Breaker Beater—Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.

BLOWERS
8—Buffalo Forge Company—Size 7—Duplex Conoidal steel plate Blowers. Ball bearing.

CALENDER STACKS
1—5 roll 84" face—Farrel.
1—6 roll—72" face.
1—7-roll 36" Holyoke Machine (supercalender.
1—2 roll 24" laboratory calender stack.

CENTRAP
1—Shartle Brothers Centrap.

COATING MACHINE
1—26" six roll coating machine.

CREPING MACHINE
1—86" Waldron Creping Machine, practically new. Could be used for laminating.

CYLINDER MOULDS
1—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.
1—36" diameter x 80" face.
2—36" diameter x 72" face.
5—30" diameter x 72" face.

DOCTORS
14—Dillon Doctors—complete with accessories—98" face.

DRIVES
1—40 h.p. Bagley & Sewall, enclosed drive.
2—30 h.p. Downingtown, enclosed drives, ratio 6 to 1.
1—Cleveland Worm Drive, Ratio 10 to 1, New.
4—Smith & Winchester mortise gear Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM.
1—#7½ Reeves Drive.

DRYERS
16—36" diameter x 115" face. (Gears & Bearings).
1—28" diameter x 76" face.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby).
2—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
1—48" x 100".
1—36" diameter x 38" face.
5—48 x 72.
2—36 x 74. Bearings & new gears.
2—36 x 76. (Bronze). Bearings & new gears.

DRYERS
1—24 x 74 (Stainless steel).
3—24 x 72 (Copper face, textile type).
1—24 x 70 (Baby dryer).

ERKENSATORS
2—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREEN
1—4 plate Flat Screen.

HYDRAULIC PRESSES
1—Lake Erie Engineering Co., 78 ton, platen 12" x 12".
1—Watson Stillman, 60 ton, platen 14" x 14", with triplex pump and motor.

JORDANS
1—#2 Emerson, with 125 h.p. motor.
2—Noble & Wood, Pony Monarch, Belt Driven.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Monarch, new fillings.

LIGHTER BAR LIFTS
3 sets Hydraulic Lighter Bar Lifts, with pump.

MOTOR
1—25 h.p. motor, including starting equipment.

PULLEYS
Various cone and assorted pulleys.

PULP EQUIPMENT
1—32" three pocket Glens Falls Grinder (for 27" wood).

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PULVERIZER
1—Erie coal pulverizer.

PUMPS
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (50' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.
4—Vertical Schutte & Koerting Acid Pumps (with motors).

RAG CUTTER
1—#20 Taylor, Stiles & Co.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS
3—Moore & White Rotary Screens (alternating diaphragm type).

ROTARY SCREEN
1—#2 Bird Screen (copper vat).

SAVEALL
1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)

SCREEN PLATES
36 plates—43 x 11$\frac{1}{16}$"—.050 cut—bevel edges.
24 plates—Recently recut .008.
12 plates—Recently recut .035.
Also other sizes and cuts in stock.

SHREDDERS
1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS
1—128" Moore & White Sheeter with layboy.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS
1—72" Langston.
1—36" Beck Razor Blade type Slitter & Winder.
1—60" Moore & White Slitter and Winder set for 5½" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
2—32" Cameron, Type 6.

STOCK PUMPS
1—7¾ x 12 duplex Moore & White.
1—12 x 20 Triplex Shartle.
1—10 x 12 open impeller. (All lead).
5—Goulds Centrifugal Stock Pumps, 4 x 6, ball bearing.
Numerous other Centrifugal Stock Pumps Advise us to your requirements.

SUCTION FELT ROLL
1—Downingtown Suction Felt Roll — 10" diameter x 107" face).
1—Nash 110" Suction Felt Roll.

TOILET AND TOWEL MACHINES
1—65" Towel Machine.
1—85" Toilet Machine.

V-BELT DRIVES
1—{23" diameter x 14" face, 10 grooves.
{15" diameter x 14" face, 10 grooves.

VACUUM PUMP
2—#4 Nash Hytor.
1—No. 7 Sturtevant Vacuum Pump.

VALVES
8—8" Quick Opening Stock Valves.
3—6" Quick Opening Stock Valves.

WET MACHINE
1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.

250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

TELEPHONE
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CABLE ADDRESS: JACK ROSS

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

JACK ROSS, President

AIR HOISTS
2—Two-Ton Ingersoll Rand
2—Five-Ton Ingersoll Rand

BEATERS
2—1000 lb. Horne Iron Tub.
3—1200 lb. E. D. Jones Iron Tub Beaters with washers.
2—1200 lb. E. D. Jones Beater—no tubs.
3—Valley Iron 750 lbs. Iron Tub Beaters, with Silent Link Belt Drive.
1—1200 lb. Noble and Wood—no tub. Spare new fillings for roll.
2—Valley Iron—Roll 67" diameter x 60" face—wood tub.

BIRD SCREEN PLATE
17 Plate—60 cut. New condition.

BLEACHERS
3—Fletcher high density bleachers—used 8 months.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.

CALENDER DOCTORS
1 set of 16 Warren Doctors 104" face with frames.
80 Warren Doctors—various sizes.

CALENDER ROLLS
30 rolls various sizes

CALENDER STACKS
1—2 roll Holyoke 38" face.
1—Pusey & Jones 9 roll 64" face.

CONVERTING EQUIPMENT
2—Sanitary Napkin Machines. With motors and starters.
1—Bliss Double Head Stitcher.

COUCH ROLLS
2—18" diameter x 92" face—brass covered.
3—20" diameter x 92" face—brass covered.

CYLINDER MOLDS
3—Impco—84" face—40" diameter with stainless steel face wire
2—110" face x 36" dia.
4—84" face x 36" diameter.

DANDY ROLLS
1—122" face 10" dia.
1—139" face 12" dia.
1—129" face 9½" dia.

DRYER DOCTORS
40—Warren Doctors. Various sizes.

DRYERS
38—48" Dia. x 46" Face, Chromium Plated.
2—24" Dia. x 46" Face.
13—120" face x 48" diameter—New
1—100" face x 48" diameter—with ball bearing.

ELECTRIC HOIST
1—Sprague Electric 5 ton hoist—5 h.p. 3 phase—60 cycle—110 volts.

FLAT SCREENS
3—Harmon 16 plate.
1—Sandy Hill 2 state flat screen.
1—6 plate Packer—Roller shoes.

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINIER WET END
1—120" Beloit Fourdrinier Wet End.
1—74" Pusey & Jones Wet End.

GRANITE ROLLS
1—112" face 20" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5252.

JORDANS
1—E. D. Jones Imperial Jordans—belt driven.
1—Smith & Winchester 30 ton capacity—belt driven.
1—E. D. Jones Imperial Jordan with 200 h.p., —360 r.p.m. motor.
1—Jones Standard

KNOTTERS
1—Wells Knotter.
2—Trimbey Knotters.

LINE SHAFT
1—Complete line shaft with pulleys and pillar block.

PLATERS
2—Holyoke 2 Roll 18" dia. 30" face.

PULLEYS
60—Cone Split and Solid Cast Iron Pulleys. Various Sizes.

PULP EQUIPMENT
1—120" face Kamyr Press.
1—84" Sumner Disc Barker with motor
1—84" Carthage 4 knife chipper, 3 sets spare knives with one Waterville Rechipper.
2—IMPCO Pulp Screens
2—Trimbey Knotters
2—Apmow Pulp Screens

PULPERS
1—Voith Pulper 28 tons cap.
1—Bird Pulper.

PUMPS
3—Ingersoll Rand 250 g.p.m. 1740 rpm 90' head —4" suction—3" discharge. Direct connected to 10 hp. General Electric 220-440 volt—3 phase—60 cycle motor.
2—Ingersoll Rand 500 g.p.m. 1745 r.p.m.—80' head—4" suction—3" discharge. Connected to 15 h.p. General Electric 220-440 volt—3 phase—60 cycle motor.
4—Worthington Pumps 10,000 g.p.m.—33' head. Requires 75 h.p. at 850 r.p.m.
1—DeLaval 6" x 6".
6—Warren Vertical Pumps. 6" suction. 3" discharge. 138 g.p.m. 90' head. Direct Connected 5 h.p. General Electric motor. 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.
2—Worthington 3". 2 stage, 200 g.p.m. 224' head. Bronze Ball Bearings.
1—Worthington 400 g.p.m. 35' head 1750 r.p.m. Ball bearing.
1—Gould Figure 3006—size 8-4" suction—3" discharge.
1—American Marsh 200 g.p.m.—50' head—3" suction 2½" discharge. Connected to 7½ h.p. G.E. motor—230 volts.
1—Pennsylvania 1000 g.p.m. 80' head—8" suction—6" discharge—Connected to 30 h.p. G.E.—220 v. 3 phase—60 cycle motor.
8—De Laval Verticals—540 g.p.m. 1740 r.p.m. —30' head 5" x 5". Direct connected to 7½ h.p. Allis Chalmers Motor. 440 volts—3 phase—60 cycle.
1—6" Pusey & Jones Open Impeller Centrifugal Stock Pump—belt driven.
1—7" Pusey & Jones Open Impeller Centrifugal Stock Pump—belt driven.
1—Worthington 750 g.p.m. 120# head.
3—3" Lance Size Pumps—belt driven.
1—Le Courtney 4 stage, 1000 g.p.m., 1750 r.p.m., 750' head. With base and couplings for motor.
1—Le Courtney 6 stage 1200 g.p.m., 1760 r.p.m., 1100' head, with base and couplings for motor.
10—Water Pumping Units, 900 g.p.m., 270' head. 2400 r.p.m. Driven by a Chrysler Crown Gasoline Engine and mounted on a two wheel trailer.
1—Terry Marsh 750 g.p.m., 250' head. Requires 125 h.p. motor.
2—Ingersoll Rand all bronze 175 g.p.m.—40' head.
1—Worthington 3"—200 g.p.m.—3550 r.p.m.—488' head.

REFINERS
1—Weiner Refiner 24" with extended base for direct connection to motor.

ROLLS
40—Table, Dress, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY COOKER
1—Rotary Cooker—8' dia. x 21' long—complete with drive.

ROTARY SCREENS
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
4—Moore & White.

RUBBER PRESS ROLLS
1—109" Face—17½" Diameter.
1—120" Face—18" Diameter.
1—107" Face—18" Diameter.
1—106" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 80" face.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—80" Hamblet Duplex.
1—90" Beloit Single Knife heavy duty.
1—136" Hamblet Duplex.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder—on wheels.
1—Ryther and Pringle Shredder.

SLITTERS AND WINDERS
1—41" Waldron Slitter and rewinder. Roll unwinding attachment.

STEAM LOCOMOTIVES & WOODLAND EQUIPMENT
1—32 ton 36" gauge Shay-Lima locomotive. Air pressure 150 lbs. P.S.I. with a large lot of new spare parts.
1—40 ton 36" gauge Improved Climax Locomotive. Boiler pressure 150 lbs. P.S.I. with a large lot of new spare parts.
30—36" gauge wood cars. 40,000 lbs. log or pulpwood capacity. Used 4 months.
1—Sheffield motor car, manufactured by Fairbanks Morse—36" gauge—New.

SUPERCALENDER STACKS
1—8 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

STOCK PUMPS
1—8 x 18" Beloit Duplex.

THICKENERS
1—Thickener Cylinder Mold 36" diameter x 96" face—ball bearing equipped.
Iron and vat—10" diameter couch.

TURBINES
1—Westinghouse 125 h.p. 125 steam pressure—15 back pressure. Complete. Used 1 year.

VACUUM PUMPS
2—14" x 20" Connersville.

YANKEE DRYERS
2—Beloit 8' dia. x 175" face—75# working pressure.
1—Beloit 5' dia. x 154" face—75# working pressure.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE.

NO CONNECTION WITH ANY OTHER FIRM OF SIMILAR NAME.

FOR SALE

MACHINERY FOR SALE

3—Impco Pulp Screens of design No. 3.

2—Gould, size 8", double suction centrifugal pumps mounted on baseplates but without motors. These pumps are Fig. 3450, rated 1000 GPM at 25 ft. head and require a 15 HP 1200 RPM motor. One pump is new and one pump is slightly used but in good condition.

3—Saranac Oyster-pail machines, hopper feed.

3—Saranac Butter-dish machines, hopper feed.

STEVENS & THOMPSON PAPER COMPANY
Greenwich, New York

TF

FOR SALE

22—dryers 48 x 128" with frames, gears & bearings.

6—60 x 132" dryers and bearings.

5—60 x 100" dryers and bearings, gears, and frames.

4—48 x 141" crepe dryers & anti-friction bearings.

1—22 x 94" Millspaugh suction couch.

1—12 x 14 Brownell twin variable speed engine.

2—10 x 12 Brownell variable speed engines.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio

N-21

REVAMPING AND REBUILDING MILL AND CAN OFFER FOR SALE

Carrick Combustion controls for two boilers to be sold as unit.

1—Noble & Wood Mammoth Jr. Jordan ¼" Filling.

1—Brass covered finishing press roll 17¾" dia. x 89½" face complete with bearings and Noble & Wood friction drive.

1—4000# capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.

2—8" Barnes centrifugal sewage pumps.

10—100" screen plates for No. 2-A Bird Screen. Slots .022—never used after being recut once.

1—Brass covered press roll 11½" dia x 68" face—journals 4-13/16" dia. x 7½" long.

1—Rubber covered press roll 13" dia. x 86¼" face—journals 4-15/16" dia. x 10¼" long.

1—20" face cast iron tapered pulley—2-15/16" bore, taper 31"-29½"

2—20" face cast iron tapered pulleys—3-7/16" bore, taper 31"-30"

1—20" face cast iron tapered pulley—3-15/16" bore, taper 30"-28½"

1—24" face cast iron tapered pulley—3-7/16" bore, taper 31⅝"-29⅝"

2—Steel split pulleys 60" dia. x 31" face x 5-15/16" bore.

2—Steel split pulleys 60" dia. x 41" face x 5-15/16"bore.

1—Cast iron split pulley 60" dia. x 21" face x 3½" bore.

1—Cast iron split pulley 40½" dia. x 21" face x 3½" bore.

1—Cast iron split pulley 84" dia. x 36" face x 5-15/16" bore.

1—Cast iron split pulley 72" dia. x 10" face x 8¾" bore.

1—Paper pulley 24" dia. x 21" face x 4½" bore.

1—9½" dia. x 85" face rubber covered squeeze or wringer roll—Journals 1-15/16" dia.

1—9" dia. x 88" face calender roll—5" dia. journals.

12—6½" dia. x 92" face steel drier felt rolls with 1-7/16" x 6½" journals.

2—Pair Noble & Wood lighter stands complete with lighter beams and bearings for 8" dia. journal beater roll.

1—Rubber covered roll 17¾" dia. x 89" face, journals 4⅜" dia. x 9" long with Noble & Wood friction drive.

A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See our superintendent, Mr. O. P. Fussell at our plant in Walloomsac, N. Y.

WALLOOMSAC PAPER MILLS, INC.
Mills: Walloomsac, New York
Main Office: 25 Vanderbilt Avenue
New York 17, N. Y.

TF

FOR SALE—2 Emerson Sheeters, largest sheet size 20 x 24. Address Box 46-789 care Paper Trade Journal. N-21

FOR SALE

FRANK H. DAVIS CO.,
ESTABLISHED 889
USED AND REBUILT PAPER MACHINERY.

FOR SALE

BEATERS
2—Holyoke 66 x 60 iron tub
1—Holyoke 48 x 44 iron tub
1—Horne patent beater 60 x 60, bronze bars
1—2000 lb. Horne iron tub new 1941, bandless roll 60 x 48
CALENDERS
1—52" Textile seven roll supercalender
1—43" Holyoke seven roll supercalender
6—Paper rolls 76 x 15¾ Jour. 7⅞ x 13¾"
CUTTERS
1—110" Hamblet duplex sheet cutter
1—84" Clark with Moore & White layboy
1—Taylor Stiles rag cutter
2—No. 2 Daniels rag cutters
1—63" Smith & Winchester undercut roam cutter
1—115" Single knife Moore & White cutter and slitter, also layboy
DECKERS
1—30 x 95" Black & Clawson
1—30 x 74" Impco
3—Apmew filters, mould 50 x 100"
DRIVES
6—Beloit 14 & 63 tooth
7" face C O mortise gears
DRYERS
1—8 ft. x 86"
2—8 ft. x 175"
1—6 ft. x 102"
1—5 ft. x 184" new 1939
1—6 ft. x 106"
DUSTERS
1—four cyl. R.R.
1—Devil
FANS
Two—Buffalo double turbo 6½ concoidal forced draft fans
ENGINES
1—Hamilton Corliss 10 x 30 direct connected to 30 KW Westinghouse engine generator including exciter, balance wheel 10 ft. x 11"
1—10 x 10 American Ball twin variable speed, 100 HP excellent condition
FOURDRINIER PARTS
1—119" x 54' 10" wire
Rice Barton anti friction equipped 18" breast and 18" suction couch, now running
1—120" x 75 ft. wire Horne new 1927, anti friction equipped 23" suction couch and Bellit oscillating suction boxes. Also two sets Horne heavy presses with 20" dia. rolls. Now running 450 FPM
1—133" x 61' 2" wire Pusey & Jones, plain couches, running at 500 FPM
1—100" x 31 ft. special with two Reeves drives
1—72" Sandy Hill
1—120" Voith inlet
2—Sets 10" slices
FILTERS OR DE-INKERS
1—Apmew three cylinder, mould 50 x 100", worm gear drive
MIXERS AND COOKERS
1—25 gallon cooker, No. 75
PULPERS
1—No. 1 Lamson
2—Jones with Falk reducers and motors 440 volts 3 ph sixty cycle
PUMPS
1—10 x 10 Bellit triplex
2—10 x 12 Deane rebuilt
1—Ingersoll Rand Pump, type Imperial 10
REELS
1—Two bowl Beloit, drums steel 16 x 123, slip belt drive
SCREENS
2—No. 2A Bird
2—No. 2 Bird
1—Moore & White No. 3
1—Jones Leith Walk
2—12 plate Packer
4—New 10 plate Witham vats
SHREDDERS
2—Mitts Merrill No. 15 CF direct cont. to 125 HP 440 volt motor
1—Carthage
Mitts Merrill type 14A F E S No. C 19026
SORTING TABLE
1—Moore & White sorting table
SLITTERS AND WINDERS
1—150" Moore & White four drum
1—120" Kidder two drum
1—114" Moore & White winds 60" roll
1—84" Bagley & Sewall
1—50" Cannard
1—28" Kidder two drum
1—30" Langston
WASHERS
2—2000 lb. Union Machine steel tub
Apmew three cylinder
WET MACHINES
1—84" Noble & Wood, automatic cut off Bottom roll R.C. 24 x 88"

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ASPHALT COATING, COMBINING MACHINE, GUMMING AND CREPING MACHINE, ROLL GRINDER

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175 Richdale Ave., Cambridge, Mass.

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1—54" Seybold Holyoke Mill Type Cutter. Independent, automatic clamp. Flat Power Back Gauge. 5 h.p. a.c. motor. Rebuilt and guaranteed.

1—Modern Clipper Cellophane Bag Machine.

1—68" Type 40B Hudson Sharp Toilet Paper Converter. Perforates 5" lengths toilet or 10" paper towels.

1—Noble & Wood Pony Jordan with extra new filled plug. ⅛" steel fillings.

3—Lockport Flat and Square Bag Machines making bags from 4 to 24 lbs., also SOS Bag Machines making 1, 2, 3, 7, 8 & 10 lb. bags.

1—42" 3 roll Friction Calender, two steel rolls, one cotton roll.

1—52" 9 roll Holyoke Super Calender, 5 steel and 4 cotton rolls. Revolving reel and motor equipment. Push button control.

1—53" 7 roll Textile Machinery Co.'s Super Calender. Roller bearings. Revolving reel and motor equipment. Push button control.

1—52" Waldron Brush Coater. Festoen equipment, five Buffalo Blowers, winding reel. Motor equipments.

1—58" Crahl & Hoehl Brush Coater. Festoon equipment. Five Buffalo blowers. Winding reel. Motor equipments.

1—60" Waldron Brush Coater. Festoon equipment. Six Buffalo Blowers. Winding reel. Motor equipments.

1—64" Waldron Brush Coater. Festoon equipment. New J. O. Ross Drying Oven. 5 Buffalo Blowers. New winding reel. Motor equipments.

1—54" Hamblet Rotary Sheet Cutter with Maxson Overlapping Delivery Layboy.

1—Sheridan Die Press 27x44"—rebuilt.

1—Logeman Die Press 10x30"—rebuilt.

1—Complete spiral tube winders with automatic cut-offs, also recutters. 2 Langston and 2 Knowlton manufacture.

GIBBS-BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y.

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One NEW RIFFLE SYSTEM of 2" Cypress 42 ft. long
30" deep 36" wide in three sections
TWO WASHERS — 100" Cylinder Mold with vats
Two Kickers for washers
One 200 HP Boiler
One 100 HP Motor
One NEW RYERTEX SUCTION BOX COVER 1½" thick, 9" wide 108" long overall, 82" overall holes
One UNDER CUT CUTTER 44" trim
New Black 6" cast iron pipe and fittings

WINDSOR LOCKS PAPER CORP.
Windsor Locks, Conn.

N-21

FOR SALE: 4 SHARTLE AGI-FLOW PUMPS, SIZE 12-4, COMPLETE WITH PIPING AND CHEST INTERMIXERS. ALL IN A-1 CONDITION. ADD.: BOX #46-809 c/o PAPER TRADE JOURNAL. N-21

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FOR SALE—Bag Machines—flat and square types—in good condition—can be seen in operation. Address Box 46-792 care Paper Trade Journal. N-21

FOR SALE

FOR SALE

6—Potdevin and 1 Lockport Flat and Square Bag Machines, making bags from ¼ lb. to 35 lbs.
—also Potdevin Flat and Square Bag Machines #102, 104 and 106.

GIBBS-BROWER COMPANY, INC.
21 East 40th Street, New York 16, N. Y.
N-21

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DILTS BREAKER BEATER

Bandless Roll 62" diameter x 54" face—70 tons daily capacity.
Equipped with Shartle Bros. Ragger.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N. J.
Tel. Bigelow 3-3720 N-21

FOR SALE

25—42" x 126" Downingtown dryers with 26 triple deck frames, gears, and bearings, no liners.

Box No. 46-803 care Paper Trade Journal
N-21

FOR SALE

New brass covered felt or wire rolls 6⅝" dia., 84 to 120" face. These are made from government surplus and are new in all respects.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE—Laboratory Hot Melt Coating and Laminating Machine. Address Box 46-766 care Paper Trade Journal. N-21

FOR SALE—2—Quadruple Effect Vertical Body Evoporators; 3—Rotary Dryers, 7½' x 65', 7' x 70', 7½' x 130'; 2 Rotary Digesters. Full details upon request. BRILL EQUIPMENT COMPANY, 225 West 34th Street, New York, 1, N. Y. D-5

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FOR SALE—1—Economy 1,000# Capacity Electric Tiering Machine; 1—Economy 1,500# Capacity Electric Tiering Machine. Both equipped with: 3 h.p., 230 Volt, D-C Roth Motor. Address Box 46-726 care Paper Trade Journal. D-12

FOR SALE—One 38" two color Rotogravure Press. Sheet feed and pile delivery. Practically new. Address Box 46-541 care Paper Trade Journal. TF

FOR SALE

1—86" Waldron Creping Machine
Practically new. Could be used for laminating.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N. J.
Tel. Bigelow 3-3720 N-21

WANTED

WANTED

Dryers—38" face minimum x 36" to 60" diameter complete with bearings, gears and frames.
4 to 6—Dryers—85" face x 36" diameter complete with bearings, gears and frames.
2—Rubber worm felt rolls—85" face. Journals 1 1/16" dia. x 8" long.
1—Supercalender stack—7 to 10 rolls—50" face minimum.

Address Box 46-765
care Paper Trade Journal
N-21

WANTED

Side rolls odd lots of any kind of paper in rolls 12½" and wider any color, preferably white, also printed with any design. All grades.

Contact
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BLEYCO PAPER CORP.
214 Sullivan St., New York #12
D-26

WANTED

Oliver filter for ground wood thickener.

Box No. 46-801 care Paper Trade Journal
N-21

WANTED

1—Two or four-drum winder 124" or wider.
1—124" or wider calender stack.
1—Two spool or uniform speed reel 124" or wider.

Box No. 46-802 care Paper Trade Journal
N-21

WANTED

Need M F Book and Litho Paper or Paper Board .065 and .125 for exchange of 48"—.016 and .22 Imitation Kraft—P. O. Box 189, York, Pa. N-28

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WANTED—1 Set of Platform Scales—Approx. Size, 5' wide, 6' long. Address Box 46-813 care Paper Trade Journal. N-21

WANTED

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WANTED—New or used paper working and allied machinery for export.

POTDEVIN EXPORT CORPORATION
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WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—Paper Board Machine, capable of producing 35 to 100 tons folding box board daily. Replies held in strictest confidence. Address Box 46-651 care Paper Trade Journal. TF

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WANTED—SHEETER, approximately 50" new or used, advise condition, age, specification and how many sheets per minute, and price. Address Box 46-781 care Paper Trade Journal. N-28

WANTED—40" or wider Beck Sheeter or similar type; 40" or wider Rewinder Slitter; 40" or wider Embosser; napkin folders. Address Box 46-778 care Paper Trade Journal. N-21

WANTED—30 to 35 H.P. 220-volt 60-cycle 3-phase A.C. motor equipment for operating small Web Newspaper Press. Address Box 46-790 care Paper Trade Journal. N-21

WANTED FOR EXPORT—Large and tabloid size over-issued newspapers. Address Box 46-797 care Paper Trade Journal. N-21

WANTED—Brightwood Box Machine. Address Box 46-33 care Paper Trade Journal. TF

WANTED—Complete equipment for Paraffining Boxboard, with refrigerating and heating unit. Address Box 46-812 care Paper Trade Journal. N-28

WANTED — One complete mill for making white patent coated, newsboard, cover paper, complete with three formers or cylinders. Trim about 72 inches, capacity eight tons daily. Wanted for export. J. M. Rios & Co., 11 Broadway, New York, 4, N-21

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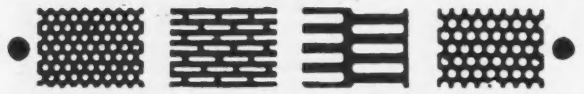

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THE CORROSION RESISTANT ALLOY
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For More than 40 Years Reducing the Cost of Steam in Paper Mills.

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"EXCELSIOR" FELTS
Manufacturers of Felts of Superior Quality
for Every Grade of Pulp and Paper
KNOX WOOLEN COMPANY
CAMDEN, MAINE

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Serious business, this thing of finding the particular felts best suited to the characteristics of both paper machine and stock.

To help superintendents on felt problems is the main function of Orr field representatives. These men are specially trained and gladly respond when called.

Complete line of woolen felts, a size and texture for every paper machine requirement.

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ORR FELTS

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Raybestos-Manhattan Inc. Manhattan Rubber Division

ADHESIVES
American Anode Incorporated
American Resinous Chemicals Corp.
Arabol Mfg. Co.
Casein Company of America
Flintkote Company
Kelco Company
Monsanto Chemical Co.
National Adhesives Division of National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Biggs Boiler Works Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Hardinge Co., Inc.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

AIR CONDITIONING
Spray Engrg. Company
Steamaire Company

ATOMIZERS
Steamaire Company

BAG MACHINES
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BALING MACHINES
Thomas W. Hall Co.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
Fibre Making Processes, Inc.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BEARINGS
Black-Clawson Company
Jones, E. D., & Sons Co.
Magnus Metal Corp.
Montague Machine Works
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rollway Bearing Co.
Shartle Brothers Machine Co.
SKF Industries, Inc.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Woods' Sons Company

BEATERS & JORDANS
The Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hermann Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Brothers
Allis-Chalmers Mfg. Co.
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machy. Corp.

BLEACHING BOILERS, ROTARY
The Biggs Boiler Wks. Co.

BLEACHING APPARATUS
The Biggs Boiler Works Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
Biggs Boiler Works
Foster Wheeler Corp.

BOILERS (Electric)
Steamaire Company

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Casein Company of America

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Grinnell Company
Hamblet Machine Co.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.

WHERE TO BUY

Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Rosa, J. O., Eng. Co.
Shartle Brothers Machine Co.
Williams Apparatus Co.

CHEMICALS
American Anode, Incorporated
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Ansul Chemical Co.
Calco Chemical Co.
The Cowles Detergent Co.
Diamond Alkali Co.
Dispersion Process, Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Falls Chemical Products Co.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
Kelco Company
Mallinckrodt Chemical Wks.
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
National Oil Products Co.
Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

CLEANING MATERIALS
Adell Chemical Company
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
The Cowles Detergent Co.
E. I. du Pont de Nemours & Co., Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Monsanto Chemical Co.
Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Pawick Airflex Co., Inc.
Hardinge Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Stearns Magnetic Mfg. Co.
T. B. Wood's Sons Company

COATING MACHINERY
Hudson Sharp Machine Company
Mayer Machine Co.
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corporation, John
Weber, Herman G.

COCKS, LUBRICATED PLUGS
American Car & Foundry Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machy. Corp.

CONDENSERS
Foster Wheeler Corp.

CONSULTING ENGINEERS
Frederic C. Clark
Ferguson, Hardy S.
Hardy, George F.
Alvin H. Johnson & Co., Inc.
The Kohler System Company
Main, Inc., Chas. T.
The McPherson Company
Roderick O'Donaghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
South Wabash Engrg. Co.
Stone & Webster Engrg. Corp.

CONTROLLERS
Black-Clawson Co.
Cochrane Corp.

CONTROLS
The Bristol Company
Cochrane Corp.
Stickle Steam Specialties Co.

CONVEYORS
Black-Clawson Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.

COOLING SYSTEMS
Foster Wheeler Corp.
Steamaire Company

CORES
Elixman Paper Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

CRANES
Northwest Engrg. Co.
Reading Chain & Block Company

CRUSHERS
Fibre Making Processes, Inc.

CUTTERS
Dilts Machine Works
Thomas W. Hall Co.
Noble & Wood Machine Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F
Steamaire Company
Valley Iron Works Co.

DE-INKING
Adell Chemical Company
Dilts Machine Works
Hardinge Co., Inc.
Kinsley Chemical Co.
Shartle Bros. Mach. Co.

DIGESTERS
Biggs Boiler Works Co.
Foster Wheeler Corp.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
Lodding Engrg. Corp.
Montague Machine Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.

LET'S GET DOWN TO THESE!

If you're one of the many manufacturers or distributors now considering the establishment of new plants, new outlets, in the promising Southeast, this message may help you with your plans.

You'll need every item of information which can be made available to you in order to select the *right* location for your particular needs.

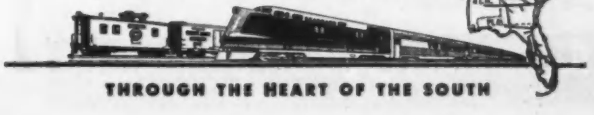
Will the proposed site have railroad facilities for prompt, efficient transportation of your materials and finished products? Are sources of supply at hand or readily accessible? Is labor available for all your purposes? These are major questions—*but many others which occur to you will require intelligent, dependable answers, too!*

So let's get down to brass tacks . . .

The Industrial Department of the Seaboard Air Line Railroad is equipped to give you comprehensive information concerning sites now available along Seaboard's right-of-way. Its staff will be glad to work with you, answer your questions specifically, prepare reports bearing upon your individual plant requirements. Your inquiry will in no way obligate you, and will be treated in utmost confidence. Please address:

Dallas T. Daily, General Industrial Agent
Seaboard Air Line Railroad Company, Norfolk 10, Va.

SEABOARD
AIR LINE RAILROAD COMPANY



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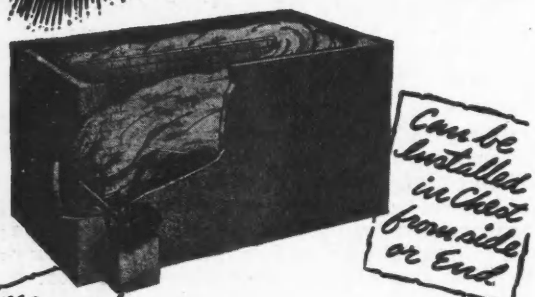

Can be installed in Chest from side or End

No Outboard Bearings HENCE GREATER OPERATING EFFICIENCY...

WILL prevent settling out of solids. A number of combinations may be designed. Agitators can be made to move from 3000 to 20,000 gallons per minute. Regardless of the shape of the chest in any Murco installation, the principle of agitation is the same.

Murco Axial Flow Agitators are made of suitable materials to handle various chemicals. Submit an outline of your problem and we shall gladly send you complete details.

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WHERE TO BUY

J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DRUMS
Fibre Making Processes, Inc.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS
Northern Engraving & Mch. Co.
Roehlen Engraving Works

EVAPORATORS
Black-Clawson Company
Foster Wheeler Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Fibre Making Processes, Inc.
Hardinge Co., Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CONDITIONERS
Steamaire Company

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
Aluminum Flake Co.
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Cochrane Corp.
Hardinge Co., Inc.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Worthington Pump & Machy. Corp.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Klemp Co., W. F.
Norton Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS
Johns-Manville Sales Corp.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

GEARS
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company
United States Rubber Co.

HEAT EXCHANGERS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEAT RECOVERY SYSTEMS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthington Pump & Machy. Corp.

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.
Reading Chain & Block Corp.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

HUMIDITY CONTROL
Spray Engrg. Company
Steamaire Company

HYDRAPULPERS
Ross Paper Machy. Co.

INSTRUMENTS, TESTING AND MEASURING
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.
Williams Apparatus Co.

WHERE TO BUY

INSULATION
Johns-Manville Sales Corp.

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works
Williams Apparatus Co.

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LINTER COTTON
The Railway Supply & Mfg. Co.

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

LUBRICATORS
Hills-McCanna Co.

MATERIAL HANDLING
Automatic Transportation Co.
Brooks Equipt. & Mfg. Co.
Northwest Engrg. Co.
Reading Chain & Block Company

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

MOISTENING EQUIPMENT
The Spray Engineering Co.
Steamaire Company

MOISTURE CONTENT CONTROL
Spray Engrg. Company
Steamaire Company
Stickle Steam Specialties Co.
Williams Apparatus Co.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Continental Electric Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

NOZZLES
Spray Engrg. Company
Steamaire Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.

PAPER MILL BUILDERS
Merritt-Chapman & Scott Corp.
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Theo. Adams
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
Black-Clawson Company
Crane Company
Deublin Company
Grinnell Company
Johns-Manville Sales Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
Taylor Forge & Pipe Works
Walworth Company

PLATERS
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.
Foster Wheeler Corp.

PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
Weber, Herman G.
Williams Apparatus Co.

PULPERS
Bauer Brothers Co.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America) Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PULPSTONES
Norton Company

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Buffalo Pumps, Inc.
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hardinge Co., Inc.
Hills-McCanna Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Morris Machine Works
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Steamaire Company
Warren Steam Pump Company
Worthington Pump & Mchy. Corp.

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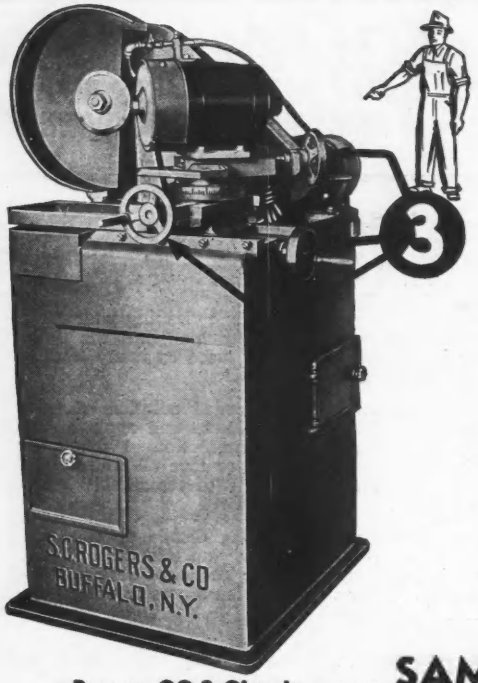

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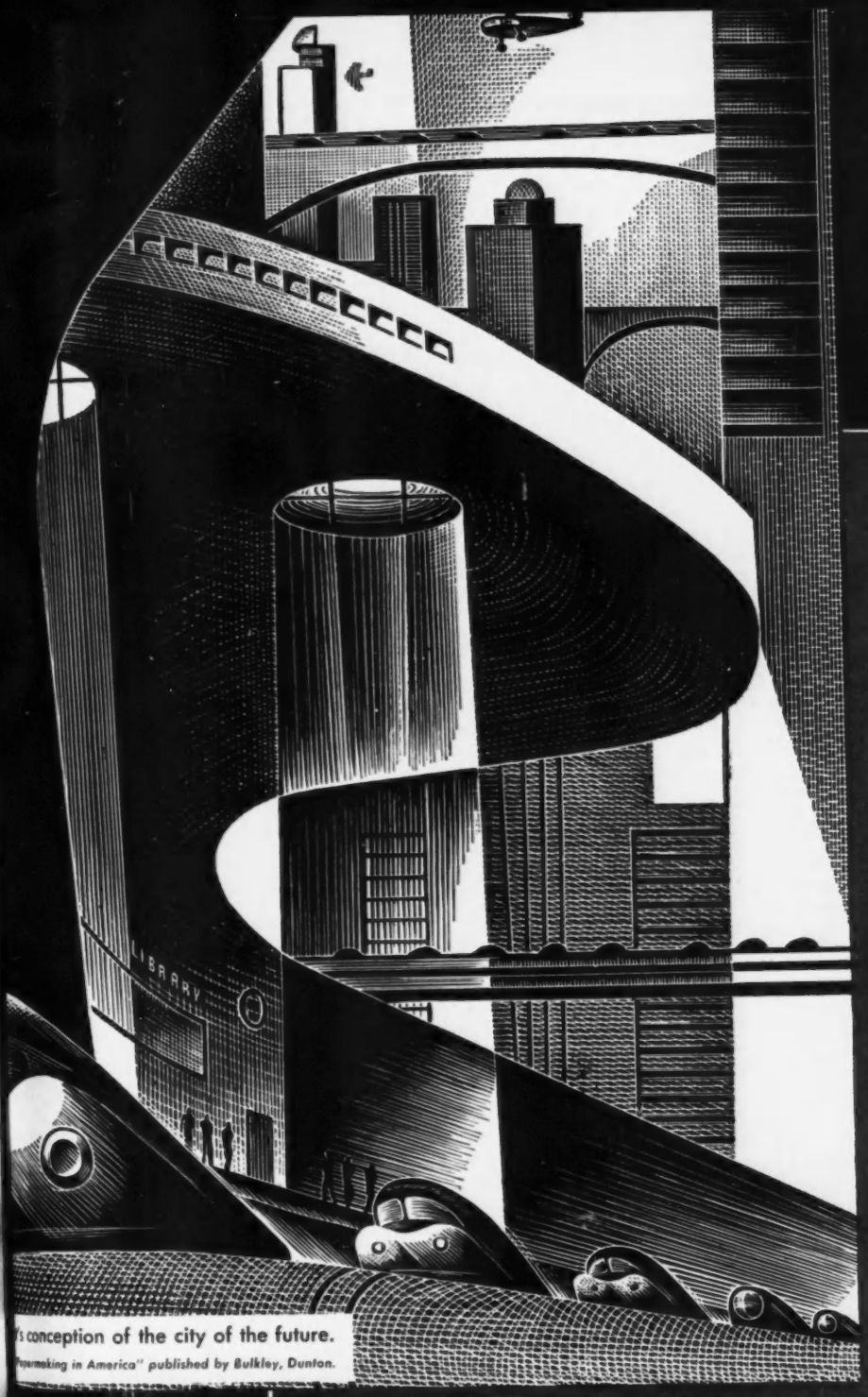

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